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The Commonwealth of Massachusetts

DEPARTMENT OF LABOR AND INDUSTRIES

OFFICIALS

DEWITT C. DEWOLF, CHESTER, COMMISSIONER.

MARY E. MEEHAN, BOSTON, *Assistant Commissioner*.

JOHN L. CAMPOS, FALL RIVER, *Associate Commissioner*.

EDWARD FISHER, LOWELL, *Associate Commissioner*.

RAYMOND V. MCNAMARA, HAVERHILL, *Associate Commissioner*.

HEADS OF DIVISIONS AND BRANCHES

Board of Conciliation and Arbitration:

EDWARD FISHER, *Chairman*. JOHN L. CAMPOS. RAYMOND V. MCNAMARA.

Division of Industrial Safety: JOHN P. MEADE, *Director*.

JOSEPH MONETTE, *Counsel*.

Division of Minimum Wage: MARY E. MEEHAN, *Acting Director*.

EDWARD FISHER, *Chairman*. JOHN L. CAMPOS. RAYMOND V. MCNAMARA.

Division on the Necessaries of Life: RALPH W. ROBERT, *Director*.

Division of Standards: JOHN P. MCBRIDE, *Director*.

Division of Statistics: ROSWELL F. PHELPS, *Director*.

MARGARET SHEA, *Statistician for Manufacturers*.

LESTER E. ARCHIBALD, *Statistician for Labor*.

Division of Occupational Hygiene: MANFRED BOWDITCH, *Director*.

Unemployment Compensation Commission: M. JOSEPH MCCARTIN, *Executive Secretary*. EMIL E. FUCHS, *Chairman*, ROBERT J. WATT, FRANK G. ALLEN.

Division of Public Employment Offices: FRED J. GRAHAM, *Director*.

REPORT OF THE COMMISSIONER OF LABOR AND INDUSTRIES

To the General Court:

The sixteenth annual report of the Department of Labor and Industries for the year ending November 30, 1935, is herewith submitted.

ADMINISTRATION

In December, 1934, His Excellency Joseph B. Ely appointed DeWitt C. DeWolf of Chester, Commissioner of Labor and Industries. Shortly after taking office Mr. De Wolf was taken ill. Continued poor health making it impossible for him to attend to his duties he delegated the authority of the Commissioner to the Assistant Commissioner.

We regret to record the death of Mr. DeWolf who passed away on November 13 of this year.

MINIMUM WAGE

The principal work of the Minimum Wage Division for the past year has been the establishment of new wage boards to comply with the mandatory provisions of the new law. A laundry and dry cleaning wage board has been set up and others are in process of formation. For the most part, because of the effectiveness of the NRA codes, the board did not find it advisable to resort to publication.

NON-PAYMENT OF WAGES

The adjustment of complaints under the weekly payment of wages law again stands out as one of the most important duties the department has to perform. Of the 2,687 complaints received and approved by the department 1,744 reported payment in full. Through the efforts of the department the sum of \$50,365.35 was paid in wages to the workers.

EMPLOYMENT SERVICE

In September of this year the division of Public Employment Offices passed from under the jurisdiction of this department to become a division of the newly created Unemployment Compensation Commission. Under the provisions of chapter 479, the Unemployment Compensation Commission while a part of the Department of Labor and Industries is not under its direction.

An account of the activities of the public employment offices for the year 1935 may be found in the report of the Unemployment Compensation Commission, which is included herewith.

DETERMINATION OF MINIMUM WAGE RATES ON PUBLIC WORKS

Chapter 461 of the acts of 1935, effective October 28, 1935, provides for the prior determination by the Commissioner of Labor and Industries of the minimum wages to be paid certain classes of workmen engaged on public works by the commonwealth or any other political subdivisions, or by persons contracting or sub-contracting for such works.

Upon the passage of this act all department officials and others interested were called into consultation. The Division of Statistics was assigned the work of collecting the basic wage data required in determining the minimum wage rates which should be paid. John J. McDonough, Chief Inspector in the Division of Industrial Safety, was designated "Wage Determination Officer" for the department, to review the wage data secured by the Division of Statistics, and to prepare for the commissioner's signature schedules of the minimum wage rates which would become effective in connection with the various projects to be undertaken. Immediately upon the passage of the act the Public Works Administration official in charge of projects in Massachusetts requested the department to begin at once its investigations and determinations so that there might be incorporated in the contracts then being let by the Public Works Administration the same minimum rates which would have been determined by the department had the law become effective immediately on its passage. This request was complied with in order that there might be no controversy over wage rates to be paid when the law went into effect.

The departmental officials co-operated fully in this work and it is gratifying to state that very few of the many schedules prepared were questioned in any way, and the work has progressed in a highly satisfactory manner.

SPECIAL INVESTIGATIONS

During the year special sanitary investigations were made of establishments in the needle trades. These included factories in greater Boston and extended to Fall River, Worcester, Springfield and Pittsfield. A similar investigation was also made in the leather tanning industries.

An investigation was made of employment conditions in the cranberry industry following a conference with representatives of the Cape Cod Cranberry Growers Association.

A more detailed discussion of these investigations may be found in the report of the Division of Industrial Safety.

SPECIAL STUDIES AND INQUIRIES

Investigation Relative to the Sale of Foreign Made Goods

Under the provisions of chapter 61 of the Resolves of 1935, the commissioner was authorized to make an investigation and study of the sale within the commonwealth of goods, wares and merchandise manufactured or produced in a foreign country, for the purpose of determining the advisability, necessity and feasibility of regulating such sale by way of safeguarding the interests and well-being of the citizens and industries of the United States, as affecting their activities within the commonwealth. The commissioner was also directed to report to the general court the results of such investigation and his recommendations, if any, together with drafts of such legislation as might be necessary to carry such recommendations into effect.

To the Division on the Necessaries of Life was delegated the responsibility for making this study. The division's report together with its recommendations was printed as Senate Bill 440.

Investigation Relative to Discrimination Against Older Wage-Earners

Under the provisions of chapter 33, Resolves of 1935, the department was required to make an investigation relative to the matter of preventing discrimination against certain persons in employment on account of their age. During the period, beginning September 25, and ending December 6, 1935, 14 public hearings and two conferences were held in the principal cities of the Commonwealth, but the evidence thus secured was not considered sufficiently specific, or comprehensive, to justify conclusions as to the extent and nature of the discrimination which, it was claimed, was being practised by employers. Accordingly, the scope of the investigation was extended to include the securing of evidence by questionnaires, which were sent to officials of labor organizations, and to those employers in the commonwealth who were known to employ 10 or more wage-earners. This phase of the investigation was assigned to the Division of Statistics, and in the report of that division, the procedure followed in making the investigation is discussed in further detail.

The statistical information thus secured will enable the department to measure the extent to which discrimination on account of age exists in the various industries and classes of employment in the commonwealth, and also the extent to which there is discrimination in hiring new employees, in rehiring former employees, and in dismissing older employees.

The resolve further provided that the department "shall include in its annual report for the current year to the General Court its findings and recommendations with relation to the subject matter of this resolve, together with drafts of legislation necessary to carry such recommendations into effect."

A preliminary report is being prepared, together with the draft of an act, to be submitted to the legislature, in order that it may have before it for consideration at its session in 1936, the findings and recommendations of this department, and the draft of legislation necessary to carry its recommendations into effect. The final report of the investigation will appear as a separate part of the annual report of the department.

Report on the Census of Unemployment in Massachusetts

The final report on the Census of Unemployment in Massachusetts, which was taken as of January 2, 1934, under the direction of this department, was completed early in 1935, and issued as a special report of the Division of Statistics. Three thousand copies of the report were issued, and arrangements were made for its distribution through the office of the Secretary of the Commonwealth.

Special Statistical Inquiries.

In order to answer requests for statistical information with reference to industrial conditions in Massachusetts, several special inquiries were made during the year, at the request of the Acting Commissioner, by the Division of Statistics, of which inquiries the following were the more important:

Manufacturing establishments in Massachusetts in which ten or more wage-earners are employed.

Manufacturing establishments in Massachusetts which ceased operations or moved to other states, 1933 to April, 1935.

Textile mills in Massachusetts which ceased operations or moved to other states, 1921-1934.

Manufacturing establishments which ceased operations in Massachusetts in 1934, and number of wage-earners employed therein.

Boot and shoe manufacturing establishments in Massachusetts which ceased operations or moved to other states, and new establishments organized in Massachusetts in 1934.

Number of wage-earners employed in 1921 in concerns which went out of business during the period, 1921-1934.

Statistics relative to strikes in Massachusetts, 1932 through March, 1935, showing number of strikes, number of workers involved, and number of man-days lost, classified by cities and towns.

CONFERENCES

The Acting Commissioner represented the department at the Fifth Minimum Wage Conference which was held in Washington, November 25, under the direction of the Women's Bureau of the U. S. Department of Labor.

The principal matters discussed by the Conference pertained to the problems of administering and enforcing minimum wage laws, and the need for and collection of data concerning the effects upon industrial women of such legislation.

At the request of His Excellency the Governor the Acting Commissioner represented the Commonwealth at the convention of the Association of Governmental Officials of the United States and Canada held at Asheville, N. C., September 30 to October 4.

APPROPRIATIONS

The total amount of the several appropriations for the use of the department during the year ending November 30, 1935, was \$496,018.89; the expenditures amounted to \$459,499.80, leaving an unexpended balance of \$36,519.09. There has been collected in fees through the Division of Standards and paid to the treasurer of the commonwealth the sum of \$112,036.06. Fees for the examination of painters and the registration of riggers to the amount of \$2,797.50 were also collected and paid into the state treasury through the Division of Industrial Safety.

MARY E. MEEHAN,

Acting Commissioner of Labor and Industries.

FINANCIAL STATEMENT FOR 1935

INCOME

<i>Division of Industrial Safety</i>			
Fees for registration of painters' rigging		\$1,173.50	
Fees for examination for certification as painters' rigger		1,624.00	
Collected in fees and paid into the treasury of the commonwealth			\$2,797.50
<i>Division of Standards</i>			
Collected in fees and paid into the treasury of the commonwealth		\$71,305.56	
Collected in fees and paid into treasuries of the cities, towns and counties of the commonwealth		40,397.00	
Penalties for violations of hawkers and pedlars laws		333.50	
Total receipts of division of standards			\$112,036.06
Total receipts of department of labor and industries			\$114,833.56

EXPENDITURES

Account	Appropriations and balances forwarded from 1934	Expenditures	Unexpended Balance
<i>Administration</i>			
Commissioner, assistant and associate commissioners, personal services	\$20,200.00	\$19,742.56	\$457.44
Clerical and other assistance	7,300.00	7,292.40	7.60
Investigation re: discrimination against older workers, Chapter 33, Resolves of 1935, personal services and expenses	1,000.00	976.08	23.92
<i>Division of Industrial Safety</i>			
Inspectional service, personal services and expenses	169,225.00	164,159.88	5,065.12
<i>Division of Statistics</i>			
Statistical service, personal services and expenses	73,154.81	72,567.55	587.26
<i>Board of Conciliation and Arbitration</i>			
Personal services	14,000.00	7,855.00	6,145.00
Other expenses	3,151.31	2,665.58	485.73
<i>Division of Minimum Wage</i>			
Personal services	14,265.00	14,255.35	9.65
Other expenses	2,507.00	1,827.13	679.87
Wage boards	500.00	78.40	421.60
<i>Division of Standards</i>			
Personal services	31,530.00	31,418.97	111.03
Other expenses	13,613.03	11,287.52	2,325.51
<i>Division on the Necessaries of Life</i>			
Personal services	12,860.00	12,825.00	35.00
Other expenses	2,550.00	1,991.61	558.39
<i>Division of Occupational Hygiene</i>			
Personal services	10,740.00	10,546.32	193.68
Other expenses	9,865.55	9,244.78	620.77
<i>Division of Public Employment Offices</i>			
Personal services	57,970.00*	42,249.11*	15,720.89*
Other expenses	13,240.00*	10,213.28*	3,026.72*
Totals	\$457,671.70	\$421,196.52	\$36,475.18
Public Employment Offices, United States Grant			
Personal services and expenses	38,347.19*	38,303.28*	43.91*
GRAND TOTAL	\$496,018.89	\$459,499.80	\$36,519.09
<i>Reconciliation</i>			
Officials	\$20,200.00	\$19,742.56	\$457.44
Personal services and expenses	436,971.70	401,375.56	35,596.14
Wage boards	500.00	78.40	421.60
Public Employment Offices, United States Grant	38,347.19*	38,303.28*	43.91*
GRAND TOTAL	\$496,018.89	\$459,499.80	\$36,519.09

* On September 17, 1935, the Division of Public Employment Offices became a division of the newly created Massachusetts Unemployment Compensation Commission (Chapter 479, Acts of 1935). Figures shown in the above statement cover the period December 1, 1934, through September 17, 1935.

REPORT OF THE DIVISION OF INDUSTRIAL SAFETY

JOHN P. MEADE, *Director*

INSPECTION OF INDUSTRIAL ESTABLISHMENTS

Regular inspection of industrial establishments was carried on during the year. This system afforded supervision of the safety, health, and conditions of employment relating to wage earners in manufacturing, mechanical, mercantile and other industrial establishments. It secured compliance with the laws and regulations for the safeguarding of hazardous machinery and the protection of employees against conditions in industry harmful to health; furnished local and general exhaust ventilation to remove from the work place irritant dusts and fumes; and brought co-operation from employers in support of the statutes requiring the sanitation of work rooms.

This included the enforcement of rules and regulations for proper toilet and washing facilities; statutory provisions regarding temperature in weaving and spinning departments of textile mills; adequate lighting in places of employment; providing pure drinking water for employees; enforcing the laws restricting the employment of women and children, and other statutes for their protection.

Inspection of building operations including structural painting for the purpose of maintaining safe scaffolding and work platforms for the workmen in these dangerous trades and enforcing the laws regarding employment on public work. Included in these statutes are the requirements for preference to citizens in employment on the construction of public works; enforcement of the predeterminate wage rate; laborers' vacations; and the eight hour law for laborers, workmen and mechanics in the public service. Complaints of violations of labor laws were investigated and study made of accidents and diseases of occupations to determine means for the prevention of similar occurrences among employees. Reference in detail is made to these matters herein. Reports are made regularly to the commissioner, dealing with special problems in industry affecting the well-being of employees and requiring his attention and direction.

SUMMARY OF ACTIVITIES

During the year there was a total of 45,698 inspections and 9,676 reinspections. The following is a summary of activities:

Employees in Industrial Establishments

	All establishments	Mercantile	Mechanical	Manufacturing
Number inspected	39,892	26,423	9,571	3,898
Number of employees	602,905	139,862	140,552	322,491
<i>Males</i>				
14 to 16 years	311	226	51	34
16 to 21 years	20,051	4,997	3,903	11,151
Over 21 years	355,549	76,603	89,723	189,223
Boys, 16 to 18 years	3,142	1,037	509	1,596
Office employees	16,490	3,389	4,652	8,449
	395,543	86,252	98,838	210,453
<i>Females</i>				
14 to 16 years	73	32	30	11
16 to 21 years	26,320	5,689	4,783	15,848
Over 21 years	155,320	39,074	30,530	85,716
Office employees	25,649	8,815	6,371	10,463
	207,362	53,610	41,714	112,038

SUMMARY OF INSPECTIONS

The following statement indicates the activities of the inspection force for the year ending November 30, 1935:

Inspections: Mercantile, 26,423; mechanical, 9,571; manufacturing, 3,898; building operations, 2,724; painting operations, 2,940; road construction, 142. Total, 45,698.

Reinspections: 9,676.

Visits

Complaints: 2,865; accidents, 1,214; occupational diseases, 376; homework, 51. Total, 4,506.

Orders Issued

Labor: Employment of women and minors, 51; posting time notices, 5,442; children employed in prohibited trades and on dangerous machinery, 22; public exhibition of children, 1; procuring and returning certificates, 2,557. Total 8,073.

Health: Ventilation, gases, fumes and dust removal, 376; meal hours for women and minors, pure drinking water and seats for women, 127; core rooms and lockers, 13; Sunday work and one day's rest in seven, 346; lighting and injury to eyes, 328; toilet and washing facilities, 2,145; medical chest and medical room, 1,192; common drinking cup and common towel, 189. Total, 4,716.

Safety: Communication with engine room, 12; safeguarding machinery, 2,281; free egress, 96; unguarded openings, 62; shuttle guards, 1. Total, 2,452.

Miscellaneous: Weavers' specifications, 36; homework licenses, 11; pay wages weekly, 14; provide heat, 5; provide benzol containers, 1; post price list, 1. Total, 68.

Building Operations: Building, 392; painting, 1,022. Total, 1,414.

Public Works: Citizens' preference, 1; eight hour day, 3. Total 4.

Totals: Orders issued, 16,727; orders complied, 16,400, which included 6,930 verbal orders which were complied at the time of issuance. Orders outstanding December 1, 1935, numbered 1,231.

Complaints Received

Women and Minors: Overtime employment, 554.

Minors: Employed under 14 years of age, 23; employed without certificate, 16; employed in prohibited trades and on dangerous machinery, 10; illegal exhibition, 12; 14 year old child employed, 1. Total 62.

Time Notices: Not posted, 41; improperly posted, 2; at time other than stated, 18. Total, 61.

Illegal advertising, 2.

Unguarded machinery, 16.

Labor, General: One day's rest in seven, 76; holiday employment, 1; fines, 9; homework, 1. Total, 87.

Health and Sanitation: Toilet and washing facilities, 83; lockers, 2; locked doors, 1; lighting, 2; ventilation, 43; heating, 23; medical appliances, 4; rest rooms, 1; seats for women, 9; drinking water, 6. Total, 174.

Building operations, 16. Painting operations, 311.

Public Works: Overtime employment, 9; citizen's preference, 6; veteran's preference, 9; laborers' vacations, 4. Total, 28.

National Recovery Act, 143.

Nonpayment of wages, 2,741.

Total complaints, 4,195.

INDUSTRIAL SAFETY

Power transmission equipment was given attention during the year. There were 2,452 orders issued by the Department of Labor and Industries with respect to safeguarding machinery and these were complied with by employers. Devices to remove hazards on power transmission, sprockets, inrunning gears and set screws on revolving parts and the installation of emergency control devices on each floor, or the use of friction clutches, tight or loose pulleys, and motor stops, were provided. Orders to comply with rules in this connection were promptly concurred in and this was true of others relating to belts and pulleys dangerously adjacent to passageways or working positions of operators; to those located over commonly used passageways or aiseways; to vertical or horizontal transmission shafting; clutches having projections; revolving parts exposed to contact; couplings and collars of a dangerous type; balance and flywheels without protection and projecting keys in shafting. This work was done in the course of inspection in textile mills, including, woolen and cotton goods; shoe factories; tanneries; clothing factories; printing and publishing establishments; foundries; woodworking plants, including furniture, pianos, chairs, and other establishments engaged in the manufacture of similar

products; dyeing and finishing textiles; foundries and machine shops; paper and wood pulp establishments; slaughter and meat packing houses; in the manufacture of electrical machinery apparatus and supplies; motor vehicles, including bodies and parts; confectionery; textile machinery, cutlery and edge tools; silk manufacturing and electric light establishments; in jewelry; soap manufacturing; and other industries, including all branches of the building trades.

Protection at point of operation was given a major part in this work. This included the installation of interlocking devices; safeguarding stamping and punch press machinery and shears for cutting steel; the safe control of motor-driven dough mixing machinery, and meat grinding devices in mercantile establishments; providing safety flanges and hoods for metal grinding machinery. In the inspection of power punch press and drop forge machinery assistance was given in the use of devices for keeping hands of the operator out of the danger zone. Co-operation was given many concerns in providing new safeguards of an improved type on hazardous machinery. The gradual reduction in the number of machinery accidents in this state proves this to be constructive work. With due allowance made for decreased exposure hours in 1934 comparison made with the accident experience of 1919 leads to the conclusion that regular inspection of establishments where machinery is used has caused a reduction in industrial accidents.

Machinery Accidents by Manner of Occurrence

	1919	1934
Starting, stopping or operating machinery	9,675	2,320
Adjusting machine, tool or work	1,758	561
Hit by flying objects	3,285	382
Cleaning or oiling machines	1,298	339
Breaking of machine, tool or work	620	216
Repairing machine	223	131
All other	1,631	1,149
	<hr/> 18,490	<hr/> 5,098

During 1934, of the machine accidents, 2,320 or 45.5% occurred "while starting, stopping or operating machine." There were 3,004 cases that occurred at the "point of operation."

Machine Accidents, by Part of Machine

	Number of Cases	Per Cent of Total
Point of operation	3,004	58.9
Belts	194	3.8
Cranks or eccentrics	23	.5
Flywheels	10	.2
Gears	196	3.8
Set screws, keys and bolts	11	.2
Counterweights	4	.1
All other	1,656	32.5
	<hr/> 5,098	<hr/> 100.0

In 1919, out of a total of 67,240 tabulatable injuries, 1,750 or 2.6% resulted in permanent partial disability. During the year ending June 30, 1934, there were 35,217 tabulatable accidents, of which 853 or 2.4% were permanent partial disability injuries. These accidents included loss of fingers, hands, thumbs, toes, feet, limbs and loss of sight. The use of hand tools is one of the leading causes and is responsible for more than one half of the eye injuries in the past thirteen years. Flying chips of metal, mineral or wood, splashing liquids including molten metal and acids, and explosions of various types, continue to furnish fruitful sources for eye injuries. Accidents of this type also occur from blows by belts, by emery grinding and polishing processes, from sand blasting and flying objects of all kinds. Other factors in many of these injuries include the neglecting of slight cuts which result in infection, exposure to excessive radiating heat, and eye strain resulting

from improper or inadequate lighting. The provisions of law to protect the eyesight of employees occupied a prominent place in the work accomplished through inspection of industrial establishments. When the nature of the work or the machinery used suggested danger of injury to the eyes of employees, mechanical devices were required for their protection. Suitable goggles and transparent shields were among the means required for this purpose.

Numerous difficulties intervened to hamper this accident-prevention work. The workmen failed to use protective devices, for they proved to be uncomfortable at times. Dust, steam, or perspiration frequently covered the lenses of the goggles. In emery-wheel grinding, a glass guard securely fastened in a frame and properly attached to the mechanism is the best protection in a case where several men use the wheel. Head shields or helmets were suggested for use in many cases where exposure of the eye to intense heat and light existed. These provisions were met with co-operation in establishments where danger to the eyes prevailed in the course of employment. The industrial bulletin issued by the department and containing suggestions to employers and employees for the prevention of eye accidents was circulated among employees working in trades where eye injuries were numerous. The importance of taking care of the eyes was stressed in this publication. Through this medium attention was directed to the cause of eye injuries, especially to employees working in clerical service and in drafting, sewing, tailoring, dress-making, woodcarving, typesetting, spinning and other general textile work, and in shoe and leather making, tool and cutlery working and metal grinding and polishing. Comparative tables of such injuries which resulted in loss of wage-earning capacity taken from Table XIV, Department of Industrial Accidents, follows:

Specific Injuries

	1919	
	Number of Cases	Per Cent of Total
One finger or thumb lost at or above first joint	1,109	73.1
Two fingers on one hand	171	11.2
One eye	115	7.6
One hand	60	3.9
One toe	25	1.6
One foot	15	1.0
Two toes	12	.8
Both feet	2	.1
One hand and one finger	2	.1
One hand and one foot	1	.1
Both eyes	1	.1
One finger on one hand, and one on the other	1	.1
One finger on one hand, and two on the other	1	.1
Two arms and two legs	1	.1
One hand and one toe	1	.1
	1,517	100.0

Specific Injuries

	1934	
	Number of Cases	Per Cent of Total
One or more fingers, 1 phalange	495	65.6
Two or more fingers, 2 or more phalanges	57	7.6
One eye	51	6.8
Right or major index finger, 2 or more phalanges	26	3.4
Right or major thumb, 1 phalange	20	2.7
Right or major hand or arm	20	2.7
One foot or leg	16	2.1
One toe	13	1.7
Left or minor hand or arm	13	1.7
Right or major thumb, 2 or more phalanges	12	1.6
Two or more toes	7	.9
Right or major index finger at second joint and one or more fingers	6	.8

Specific Injuries—Continued

	1934 Number of Cases	Per Cent of Total
Right or major thumb at first joint and right or major index finger at second joint	5	.7
Right or major thumb at first joint and one or more fingers	3	.4
Right or major thumb and index finger, 2 or more phalanges	2	.3
Right or major thumb at second joint and one or more fingers	2	.3
One finger or thumb on each hand	2	.3
Two or more fingers on each hand	1	.1
One finger or thumb and one toe	1	.1
All toes on one foot, one on other and one finger on each hand	1	.1
Both hands	1	.1
	<hr/> 754	<hr/> 100.0

Free Egress from Factory Buildings

It was necessary to issue 96 orders when it was found doors were locked, bolted or otherwise fastened in violation of the law. In most of these it was found that barrels, boxes, refuse cans and containers were found stored temporarily in front of the exits and were removed immediately upon order of the inspector. Careful inspection was given to places where processes of industry required the use of gasoline, benzine, ether, naphtha, turpentine and benzol, and these included establishments engaged in the business of dry cleansing, rubber compounding, engraving and commercial photography. In some of these places inflammable compounds or explosives were used in connection with manufacturing conditions that might obstruct or render dangerous the egress of operatives in case of fire. This work included urging employers to use closed containers as a means of protection and the substitution of less inflammable and non-explosive compounds as protection against explosion and fire in factory buildings.

Special Work in Hazardous Plants

During the year 374 quarterly inspections were made in certain hazardous plants. These included concerns engaged in the manufacture of storage batteries, fireworks, brake linings, rubber goods, paints, cements, rayon, paper, celluloid products and porcelain enamel products; and in granite quarries, foundries, stone crushing plants, wood heel factories and concerns making and using benzol and manufacturing chemicals. There is filed with the department a record of each inspection, showing the condition of the plant, including its record of accidents, the type of safety program usually followed, the nature of complaints received against the firm since the time of last inspection and a statement indicating in general the attitude of the concern with respect to its compliance with the law. The report also shows the type of gases and fumes and dusts which are found in each establishment. During the year twenty-five orders were issued to provide better ventilation and to take care of the removal of dust, fumes and gases. The regular testing of equipment to remove impurities injurious to health is essential. Safeguarding machinery orders were issued in thirty-seven cases. There were thirteen orders to provide medical chests or first aid rooms and twelve for toilet and washing facilities. The work in this connection is of great importance to the reduction of work injuries and protection to the employees.

Building Operations

During the year there were 2,724 inspections on building operations. These included 371 inspections of stagings and 262 roofing inspections. One hundred and forty-eight public buildings were included in this group. There were 1,418 orders complied with for safeguarding employment in the building trades. These included requirements for the installation of safety devices in connection with the use of electricity of dangerous voltages, protection to employees working below stagings or around floor openings, regulations to control smoke and fumes where artificial light was used, and the piping of salamanders in order to provide exhaust

removal to the outer air. Examination of stagings used in the painting of buildings was prominent in this work. Safety provisions, requiring that every swing stage be tied or otherwise secured to prevent swaying; that ladders used as stage beds and ladder-type platform stages be of approved design and entirely free from defects affecting their strength; providing on every swing stage one or more guard rails securely attached to the stage at each fall and extending the entire length of the outer edge of the stage; trestle ladders of approved design and conforming in all respects to the rules and regulations were given attention.

The building trades industry contributed 2,067 cases or 5.9% of all industrial accidents for the year ending June 30, 1934. Fifteen of these cases were fatal, or 6.5% of all fatal cases. There were 30 permanent partial disability injuries or 3.5% of all cases of this type. None of these injuries resulted in permanent total disability.

Accidents in the Building Trades

During the year there were 155 accidents investigated in the building trades. Forty-six of these were fatal. They are as follows:

<i>Classified by Employment</i>	Total	Non-Fatal	Fatal
Building construction	39	35	4
Painting	36	25	11
Alterations and repairs	31	20	11
Roofing	17	11	6
Building wrecking	14	11	3
Road building	8	1	7
Bridge construction	6	5	1
Dam building	4	1	3
Totals	155	109	46

<i>Classified by Nature of Injury</i>	Total	Non-Fatal	Fatal
Fractures	55	37	18
Bruises and contusions	34	34	—
Breaks	17	16	1
Fatal falls	11	—	11
Crushed to death	8	—	8
Lacerations	8	7	1
Amputations	6	5	1
Concussion	6	3	3
Internal injuries	4	3	1
Sprains and strains	4	4	—
Burns	1	—	1
Suffocation	1	—	1
Totals	155	109	46

<i>Classified by Causation of Injury</i>	Total	Non-Fatal	Fatal
Collapse of staging	41	32	9
Collapse of building	23	21	2
Falls from scaffolds, ladders, etc.	17	7	10
Loss of balance	16	13	3
Struck by falling objects	13	7	6
Breaking of ladders	7	7	—
Slipping of ladders	7	5	2
Falls from roofs	5	2	3
Breaking of gutters	5	5	—
Trench cave-in	2	—	2
Breaking of rope	2	1	1
Miscellaneous	17	9	8
Totals	155	109	46

Prevention of Work Injuries

There were 926 accidents investigated by this department during the year ending November 30, 1935. Seven hundred and seventy-one of these accidents were investigated in industrial establishments and 155 in the building trades. Those occurring in industrial establishments include 751 adults and 20 minors under eighteen years of age. One hundred and twenty-four of the total number were fatal; 78 of these in industrial establishments and 46 in the building trades. The regularly inspected plant is rarely a place where frequent accidents occur. Uniform supervision of dangerous trades is essential in this work. Safeguarding exposure to occupational danger and instructing the employee to exercise care in the performance of his regular duties accomplishes a great deal in preventing work injuries. Unguarded machinery is discovered and statutory requirements to protect the employee from contact with danger points in the operating mechanism are enforced. These include regulations providing that permanent passageways and gangways shall be of even surfaces, kept clear and free from projecting nails, tools and obstructions; maintaining stair treads in good repair and equipped with hand rails of metal or wood, free from splinters or other hazards; and requiring means to prevent slipping on floors in plants where woodworking machines are used, such as rubber mats or non-slip composition flooring. Faulty conditions in the plant caused by the work processes are often found to be the cause of painful injury and prolonged incapacity. Attention is directed to these dangers and orders issued by the department for their correction.

General Accidents

There were 718 general accidents investigated by the inspection force of this department during the year, — 645 men and 73 women. Of the total number, 78 were fatal. Following is a table showing the industrial accidents that were investigated during the year ending November 30, 1935. This table does not include eye injuries or accidents that occurred in the building trades. See other tables for summaries of these accidents.

*Industrial Accidents Investigated during the Year Ending November 30, 1935, by
Industry, Age and Sex*

Industry	Total No.	M	F	15-17 M F	18-20 M F	21-30 M F	31-40 M F	41-50 M F	51-60 M F	61- M F	Fatal M F
<i>Textiles</i>	148	122	26	4 1	11 4	37 6	19 2	28 8	15 5	8 -	9 4
Paper and paper products	47	44	3	- -	1 -	17 3	14 -	7 -	4 -	1 -	2 -
Food products	43	38	5	4 -	3 4	9 1	7 -	10 -	3 -	2 -	7 -
Furniture and wood products	43	43	-	1 -	5 -	7 -	9 -	10 -	8 -	3 -	5 -
Tanneries	33	32	1	- -	1 1	10 -	7 -	10 -	2 -	2 -	- -
Rubber and rubber products	27	24	3	- -	2 2	6 1	4 -	8 -	3 -	1 -	2 -
Shoe manufacturing	27	24	3	2 2	3 -	3 1	5 -	4 -	4 -	3 -	4 -
Machine shop products	23	23	-	- -	3 -	3 -	3 -	3 -	10 -	1 -	2 -
Mercantile	23	18	5	1 -	1 1	5 1	3 1	5 1	1 1	2 -	4 1
Machine manufacturing	21	21	-	- -	1 -	2 -	2 -	6 -	8 -	2 -	2 -
Shoe findings	20	18	2	1 -	2 1	3 1	6 -	3 -	2 -	1 -	- -
Metal products	20	15	5	- -	3 1	6 3	3 1	2 -	1 -	- -	- -
Electrical products	19	16	3	- -	- -	4 2	8 1	3 -	- -	1 -	1 -
Hardware	18	18	-	- -	2 -	4 -	4 -	3 -	4 -	1 -	- -
Foundries	16	16	-	- -	1 -	3 -	5 -	5 -	2 -	- -	- -
Printing and publishing	16	15	1	- -	6 -	5 1	2 -	2 -	- -	- -	3 -
Steel and wire products	14	12	2	- -	- 1	3 1	2 -	4 -	2 -	1 -	2 -
Chemical manufacturing	12	12	-	- -	- -	3 -	4 -	- -	1 -	4 -	2 -
Laundries	10	7	3	- -	- -	3 -	- 1	1 2	2 -	1 -	2 -
Celluloid products	9	8	1	- -	- -	5 1	2 -	1 -	- -	- -	- -
Jewelry manufacturing	9	9	-	- -	1 -	1 -	2 -	1 -	3 -	1 -	2 -
Breweries	7	6	1	- -	1 -	3 1	- -	1 -	1 -	- -	1 -
Building maintenance	7	7	-	- -	- -	1 -	3 -	1 -	- -	2 -	2 -
Clothing manufacturing	6	3	3	- 1	- 1	- -	2 -	1 1	- -	- -	- 1
Sheet metal work	6	5	1	- -	- -	2 -	1 1	1 -	1 -	- -	- -
Cotton small wares	5	4	1	- -	- -	1 1	- -	1 -	1 -	1 -	- -
Express service	5	5	-	- -	1 -	2 -	1 -	1 -	- -	- -	1 -
Garages	5	5	-	- -	- -	1 -	2 -	1 -	- -	1 -	2 -

*Industrial Accidents Investigated during the Year Ending November 30, 1935, by
Industry, Age and Sex—Continued*

Industry	Total No.	M	F	15-17		18-20		21-30		31-40		41-50		51-60		61-		Fatal M F
				M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Shipbuilding . . .	5	5	-	-	-	-	-	-	2	-	1	-	2	-	-	-	1	-
Municipalities . .	5	5	-	-	-	-	-	2	-	2	-	1	-	-	-	-	2	-
Coal business . . .	4	4	-	-	-	-	-	2	-	1	-	-	-	-	-	1	-	1
Gasoline distribu- tion . . .	4	4	-	-	-	-	-	1	-	2	-	1	-	-	-	-	-	2
Scrap iron . . .	4	4	-	-	-	-	-	2	-	2	-	-	-	-	-	-	1	-
Automobile bodies .	3	3	-	-	-	-	-	2	-	1	-	-	-	-	-	-	-	-
Buttons and fasten- ers . . .	3	3	-	-	-	1	-	1	-	-	-	-	1	-	-	-	-	-
Hat making . . .	3	3	-	1	-	1	-	-	-	-	-	-	1	-	-	-	-	-
Ice manufacturing .	3	3	-	-	-	-	-	1	-	-	-	-	1	-	-	1	-	2
Stove manufacturing	3	3	-	-	-	-	-	2	-	-	-	-	1	-	-	-	-	-
Watches and clocks	3	3	-	-	-	-	-	2	-	-	-	-	-	-	-	1	-	-
Toy manufacturing .	3	3	2	1	-	-	1	1	-	-	-	1	-	-	-	-	-	-
Miscellaneous . . .	36	33	3	2	-	4	-	7	2	11	-	6	1	-	-	3	-	8
Totals . . .	718	645	73	16	4	54	17	172	26	141	7	133	13	84	6	45	-	72

Classified by type of injury, they are as follows:

Type of Injury	Total	Non-Fatal	Fatal
Amputations	278	275	3
Abrasions, bruises and contusions	148	148	—
Cuts, punctures and lacerations	85	83	2
Fractures and breaks	83	66	17
Burns and scalds	53	48	5
Infection	19	4	15
Crushed to death	14	—	14
Fatal falls	8	—	8
Sprains and strains	8	4	4
Internal injuries	7	4	3
Electrocution and electric shock	6	1	5
Concussion	5	5	—
Suffocation	2	—	2
Loss of use of	1	1	—
Nervous shock	1	1	—
Totals	718	640	78

Employees sustaining these injuries worked at the following occupations:

Textile Mills: Strippers, bleach house workers, card tenders, spinners, printers, and finisher tenders.

Paper Mills: Backtenders, finishers, paper makers, press feeders, and millwrights.

Food Products: Machine operators, helpers, bakers, packers and cutters.

Furniture and Wood Products: Wood workers, millmen, polishers, shapers, sawyers, and cabinet makers.

Tanneries: Embossers, rolling machine operators, beam house workers, and shaving machine operators.

Rubber Products: Millmen, rubber mixers, cloth curers, and machine tenders.

Shoe Manufacturing: Cutters, machine operators, welters, trimmers and buffers.

Foundry and Machine Shops: Punch press operators, machinists, moulders, and drop forgers.

Miscellaneous: Pressmen, sprayers, sawyers, pattern makers, chemists, carpenters, assemblers, and mechanics.

Contact with machinery caused 494 of the 718 accidents investigated. In these plants where accidents occurred 602 had safeguarded machinery; 403 of these establishments maintained first aid rooms; and in addition 169 of this group had nurses or other attendants in charge; and 52 had full time nurses and doctors in the first aid room; while 119 had a nurse and a doctor on call. Medical kits were maintained in 258 other establishments.

Eye Injuries

There were 54 eye injuries investigated by this department during the year. All but one occurred to men. They are as follows:

Classified by Industry

Textile manufacturing	11
Foundry and machine shop products	9
Automobile manufacturing and repairs	6
Mercantile establishments	4
Metal trades	4
Shoe and leather manufacturing	4
Electrical manufacturing	3
Paper making	3
Furniture and wood products	2
Wire products	2
Miscellaneous	6
	<hr/>

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Classified by Nature of Injury

Foreign bodies	19
Irritations	13
Cuts and punctures	13
Loss of sight	5
Loss of eye	3
Bruise	1
	<hr/>
	54

These injuries were caused by flying particles, chips from tools, fumes, and splatterings from caustic solutions. Typical illustrations are:

A small piece of metal chipped off a chisel and struck his eye.

Grinding a tool on an emery wheel when a particle of emery flew in his eye.

A man's eyes were irritated by the spray from an acid that he was using.

A wire broke and penetrated the eye.

While stirring a solution of sulphur and rubber cement a spattering struck a man in the eye.

Non-Machinery Accidents

Falls of persons and stepping on or striking against objects caused more accidents during the year than contact with machinery parts. The handling of objects and tools caused more industrial injuries than either falls or machinery accidents. These facts are well known to the inspectors who continually advise against conditions responsible for the origin of such accidents. Only through concerted effort of employees and management under intelligent direction will non-machinery accidents be reduced. Recommendations by inspectors in this connection include instructions for the careful handling and storing of raw material and preventing the overcrowding of employees in work places. The number of tabulatable injuries arising from non-machinery accidents and the extent of the disability which they caused appears from the following table:

*Total Tabulatable Injuries, by Cause of Injury and Extent of Disability**

Cause of Injury	Totals	Deaths	Permanent Total Disabilities	Permanent Partial Disabilities	Temporary Total Disabilities
Handling of objects	10,226	21	1	102	10,102
Falls of persons	6,534	38	2	48	6,446
Vehicles	2,914	72	2	32	2,808
Hand tools	2,522	3	—	45	2,474
Stepping on or striking against objects	2,036	9	—	14	2,013
Miscellaneous causes	1,962	12	2	35	1,913
Explosions, electricity	1,595	28	—	16	1,551
Falling objects not being handled by employee	1,439	6	—	10	1,423
Occupational diseases	699	17	1	22	659
Animals	192	1	—	2	189
Totals	<hr/> 30,119	<hr/> 207	<hr/> 8	<hr/> 326	<hr/> 29,578

* Taken from Table X of the Department of Industrial Accidents' Annual Report for the year ending June 30, 1934.

First-Aid Treatment.

There were 1,192 orders issued by the department requiring compliance with the first aid provisions of the statutes and the department's rules and regulations. Failure to furnish basins, hot water, suitable chairs, blankets, and the replenishing

of medical chests were responsible for the issuance of the orders. Persons other than a qualified nurse, employed in giving first aid treatment, were required to furnish certification from a doctor that they were competent to do the work. Injuries resulting from infection continued to be a frequent cause for incapacity and partial disability. A comparison of statistics of infections shows that there were 166 cases more than in 1933. One out of every eleven tabulatable injuries resulted in infections. The following tables show the infection, nature of injury and extent of disability, and indicate the experience with such injuries by the Department of Industrial Accidents.

*Infection, by Nature of Injury and Extent of Disability**

Nature of Injury	Totals	Deaths	Permanent Partial Disabilities	Temporary Total Disabilities
Cuts, punctures, lacerations	2,164	15	1	2,148
Abrasions, contusions, bruises	457	5	1	451
All other	376	—	2	374
Burns and scalds	95	2	—	93
Amputations, loss of use	45	3	42	—
Fractures	7	1	—	6
Sprains and strains	7	—	—	7
Totals	3,151	26	46	3,079

* Taken from Table IX of the Department of Industrial Accidents.

One out of every eleven tabulatable injuries resulted in an infection.

According to the above table there were 3,151 cases of infections resulting from injuries. This is 8.9 per cent of the total tabulatable injuries.

Injuries to Employed Children

During the year ending June 30, 1934, fourteen children under fourteen years of age were injured in their employment in street trades or other occupations permitted under the statutes.

The total number of injuries to children between fourteen and eighteen years of age reported to the Department of Industrial Accidents was 556 or 1.5% of all tabulatable injuries. Classified by age and sex they are as follows:

Age	Number	Boys	Girls
14	10	10	—
15	23	19	4
16	163	128	35
17	360	267	93
	556	424	132

Permanent partial disability injuries received in this group, classified by age and sex are as follows:

Age	Number	Boys	Girls
14	—	—	—
15	2	2	—
16	4	—	4
17	10	3	7
	16	5	11

The following table shows the type of industry and the nature of the injury:

Type of Industry	Nature of Injury
Textile	Left hand, one finger, one phalange
Food packing	Left hand, two fingers, one phalange
Shoe manufacturing	Left hand, one finger
Filing supplies	Left hand, two fingers
Hardware and cutlery	Right hand, one finger, one phalange
Metal trades	Dislocated hip
Optical goods	
Newsboy	
Laborer	

The causes of these accidents are described as follows:

One of the fifteen year old boys was employed selling newspapers and he slipped on the icy pavement dislocating his hip.

The other fifteen year old boy was employed as a metal worker and while adjusting a machine his little finger became caught and was amputated.

Of the other children four girls were employed in textile mills. One, sixteen years old, employed as a spinner and doffer in a linen mill was attempting to remove waste from moving delivery roll and the second finger of her left hand was caught and the flesh torn off to the first joint.

Another sixteen year old girl, while operating a shield machine on rolling shields on bobbins, caught the middle finger and ring finger of her left hand, crushing the bones necessitating the amputation of the middle finger at the second joint and the ring finger at the base of the nail.

A seventeen year old girl employed as a drawing frame tender cut the lap and held one end in her hand as she started the machine. The end slipped from her grasp onto the calender roll gears. In trying to remove the waste from the gears the second finger of her left hand became caught and she lost the use of the first phalange.

A girl box tender in a wool combing plant was piecing in the end at the back of the machine when she caught the index and the third fingers of her left hand, badly smashing them so that amputation was necessary. The girl was seventeen years old.

A sixteen year old girl operator of an electric bacon slicer thought the machine had stopped and she reached in to remove a piece of bacon which had become caught. The knife came down on the third finger of her left hand, cutting the tip off.

Another girl, seventeen years old employed by manufacturing confectioners was operating a candy cigarette machine when her right hand became caught in the gears crushing the ring finger so that it was amputated at the first joint.

Two girls employed as celluloiding machine operators in plants where filing supplies are made received permanent partial disability injuries. One, sixteen years old cut off the middle finger of her left hand at the first joint. The other girl, seventeen years old, put her hand under the ram of the machine and her foot on the pedal causing it to operate. The ends of the index and middle fingers of her left hand were crushed and taken off.

The shoe industry contributed two injuries in this group. A seventeen year old girl, lining stamper, was placing the die in the machine when it operated, crushing the second finger of her left hand, necessitating amputation at the first joint. A boy, seventeen years old, employed as an embesser caught his left hand under the machine which raised unexpectedly, badly crushing the middle finger.

Two seventeen year old girls were injured in plants where cutlery and hardware are manufactured. One, operating a press, caught her right middle finger between the punch and the die lacerating it so that amputation was necessary at the first joint. The other, also a press operator, was clipping small brass stampings. Evidently a piece was in crooked and as she tried to straighten it after stepping on the treadle, her left hand was caught, amputating one phalange of index finger and one of middle finger.

A seventeen year old boy, press operator in an optical goods plant, caught his left hand in the machine amputating the forefinger.

Another seventeen year old boy, a laborer in a municipal street department was shoveling snow when he was accidentally hit on the hand by a fellow worker with the blade of his shovel amputating the left forefinger.

Fatal Injuries to Minors Under Eighteen

Two minors, both boys, were fatally injured. One, fourteen years old was employed as a helper on a fruit and vegetable wagon. The horse ran away and the boy was thrown to the ground fracturing his skull. He died in a hospital.

Another boy, sixteen years old fell overboard while hauling in crab traps and was drowned.

LABOR LAWS — WOMEN AND CHILDREN

In 39,892 manufacturing, mechanical, mercantile and other establishments inspections were made. These included such places as motion picture theatres, express and transportation companies, telegraph offices and telephone exchanges, and manicuring and hairdressing establishments. Inspectors gave much of their time in these places to the instruction of individuals who were held responsible for making out the time notices containing the hours of labor for women and minors and keeping them posted as the law directs. When manufacturing concerns employed persons in night shifts during the peak season, night inspection was carried on. Employees on each tour of work were interviewed and their hours of employment checked up through examination of the lists on file. This work was given much attention in hotels, restaurants, lunch rooms, and establishments where alcoholic beverages were sold. In connection with the requirements there was compliance with 7,942 orders issued by the department. Employment of girls under twenty-one years of age in roadside stands was given careful supervision in order to enforce the statute which forbids their employment after ten o'clock in the evening. Interest of the general public in the enforcement of the laws restricting the hours of labor for women and minors is shown in 616 complaints coming to the department from this source. In 200 cases violation of law was found. In most of these there was prompt compliance with the statute upon the issuance of the orders by the department. Employment at time other than stated on the printed notice appeared to be a most common form of violation. In plants where men and women were employed together and payment for work was on a piece basis, most of these violations were found. Much of this could be traced to the fact that piece workers are often irregular as to their time of coming to work and leaving work and there was found a tendency to make up the time lost on the part of women employees. Inspectors made frequent visits to such plants and checked up the employment of women in accordance with the working hours as posted. Careful examination was made of certificates on file. The employment of minors in factories and other industrial establishments was regularly supervised. Co-operation in this matter was readily given by the well established concerns of the commonwealth.

The greatest problem in this feature of the work was found where children were given casual employment such as working in chain stores, private bowling alleys, theatres, roadside stands, dance halls and similar places. This work occupied prominent place in the inspections made at beach resorts and amusement parks in the summer time. In these locations children were occasionally found employed during prohibited hours in small stores or on motor trucks. Most of this work was done on Saturday evenings, and nights before holidays. It also included checking up the appearance of children in theatrical and dancing exhibitions, and covered child vocalists and performers on musical instruments. Police departments have co-operated with this division in preventing the employment of children by milk wagon drivers and much was accomplished in preventing this harmful type of child labor. The number of orders relative to procuring and returning certificates for minors under twenty-one years of age issued during the year was 2,557.

SUSPENSION OF THE SIX O'CLOCK LAW IN THE TEXTILE INDUSTRIES

On July 19, 1935, the legislature declaring it to be an emergency law and necessary for the immediate preservation of the public health, safety and convenience, authorized the commissioner of labor and industries in conformity with Article XX of Part the First of the Constitution of the Commonwealth, to suspend, until April 1st, 1936, subject to such restrictions and conditions as the said commissioner may prescribe, so much of section fifty-nine of chapter one hundred and forty-nine of the General Laws as prohibits the employment of women in the manufacture of textile goods after six o'clock in the evening. The rules and regulations restricting the number of women to be employed on the basis of percentage with men employees was continued by the department. Good co-operation was received from the manufacturers in the textile industries. Night inspections were made in 219 establishments and the requirements in this connection supervised closely.

HOMEWORK

During the year there were 13 licenses granted to make, alter, repair or finish wearing apparel in a room, apartment or dwelling house. These were principally concerned with work done on men's shirts, household and hospital garments, embroidery on women's dresses, neckwear and knitted outerwear goods. In homework on articles other than wearing apparel which included particularly the making of paper novelties, labels and tags, the names and addresses of the workers so hired, employed or contracted with were required of the employers and the names of all the women and minors dwelling in the room or apartment, as well as the names of girls under twenty-one and boys under eighteen, were secured and the records filed with the department. In every case statutory obligations resting upon the employers with reference to hiring women and children were made known to them. In checking up possible illegal employment, homes were visited by inspectors in cases where children under eighteen years of age were members of the family. The type of employment in which this kind of homework is being carried on included the making of electrical parts and sockets, tags, baseballs, greeting cards, shoe buckles, paper ornaments, elastic fabrics, artificial flowers, hand braided rugs, curtains and draperies, and celluloid toys. In the enforcement of this statute there were eleven orders issued by the department.

INDUSTRIAL HEALTH

Conditions dangerous to health require the closest attention from the inspection staff. The use of industrial poisons and the generation of irritant dusts or harmful fumes were given regular supervision. In employment where such work hazards prevailed, the co-operation of the management was sought to safeguard against unwholesome conditions. Industrial poisons were found used in 5,490 places inspected during the year. These were handled by employees in the course of their work. Plants reported in this connection included shoe manufacturing establishments, the making of rubberized fabrics, wood heels, storage batteries, textile fabrics, metal plating, leather finishing, and the manufacture of rubber, brake linings, watches and jewelry, refrigerators, paints, automobile bodies, and establishments engaged in the making of other products. In this group of manufacturing concerns certain processes required the use of acetone, cyanide of potassium, aniline, lead oxide, benzine, chromic acid, oil and other toxic substances. Mechanical devices were required at the point of origin in the generation of dusts, fumes and gases, to prevent inhalation of impurities by employees. Frequent testing of these devices was necessary to be assured they would function properly. The use of suitable containers, providing respirators, masks, rubber gloves and suitable goggles, were required in some of these cases to safeguard against the dangers to health. The use of respirators by workmen exposed to these hazards was stressed and the importance of their constant use urged upon the workmen. In the enforcement of statutes protecting the health of employees there were 4,716 orders issued. A total of 2,076 of these resulted in compliance with the regulations requiring suitable toilet and washing facilities. They were also concerned with the requirements for cleaning sinks and other appliances; the adequate toilet facilities based upon the number of employees; proper lighting facilities; and maintaining floors free from insanitary conditions. Sanitary inspections were made in certain trades during the period of the year when general ventilation is impaired by reason of closed windows and doors. Corrections were made when it was found that the requirements were not adequately complied with. Among the conditions found by the inspector in the plants visited and promptly corrected by the employer were these: Entrance to water-closet compartment opening directly into the room, hall or passageways used in the building where both sexes were employed and not provided with a screen; no ventilation directly to the outside air by window, skylight or other suitable opening was provided; lack of adequate lighting in toilet room and compartments; no enclosing walls substantially constructed so as to assure privacy; compartments for women inside of toilet rooms were not provided with suitable doors or furnished with suitable fasteners.

VENTILATION

In 295 orders issued by the department efficient ventilation of foundries and workshops was required. Compliance was promptly given to these requirements and satisfactory co-operation received from employers. Local exhaust equipment to control exposure at the point of origin was included in most of these cases. Duct openings and shape of hoods were supervised closely and tests made of the ventilating system to determine its efficiency. In some cases it was necessary to require a change in the type of hood in order to fully control the enclosure at the seat of dust origin when particles escaped into the workroom. In some cases it was found that the hood was too large to provide for the withdrawal of the heated fumes through the duct. In other instances hoods were found too small for the removal of dust properly. An important factor of this work during the year was the adjustment of these conditions with the requirements of the statute law. The work done to maintain efficient localized exhaust ventilation as the means of preventing the inhalation of impurities harmful to health is represented in this activity. Plants visited in this connection included shoe factories, metal plating concerns, woodworking establishments, foundries and firms engaged in the manufacture of rubber products and the making of asbestos fabrics. Dust removal and the mechanical means used for this purpose were examined in the course of inspection in places operating emery, grinding, polishing and buffing wheels. Foundry operations in which smoke, gases or dusts figured prominently were included.

PURE DRINKING WATER

Providing fresh and pure drinking water to which all employees shall have access during working hours is required by statute. For this purpose 46 orders were issued by the department and these were complied with. It was necessary during the year to request the Department of Public Health to make analysis of water supplies used in connection with some manufacturing establishments. Orders were issued to furnish pure drinking water to the employees in shoe factories, woolen and cotton mills, paper mills, bleacheries and dye works.

LOCKERS FOR EMPLOYEES

There were eight orders complied with requiring installation of separate lockers, closets or other receptacles, each with a lock and key, in establishments where the nature of the work made it necessary to make a substantially complete change of clothing. In some of these instances existing installation was not adequate and additional receptacles were furnished. These conditions prevailed chiefly in tanneries, foundries, and hotels.

SUNDAY WORK AND ONE DAY'S REST IN SEVEN

There were 346 orders issued requiring compliance with the statutes regulating Sunday work and providing for one day's rest in seven. These were promptly complied with. In this connection the new law removing the exemption of watchmen and firemen (Chapter 423 of the Acts of 1935) from the existing statute became operative late in the year and placed upon the department the responsibility to enforce the day of rest for these employees which the statute now requires. In the course of this experience the question was raised as to the application of the law in public buildings where watchmen and firemen were employed. The following opinion was given by the Attorney General on this matter.

"Boston, November 12, 1935.

MISS MARY E. MEEHAN,
Acting Commissioner of Labor and Industries.
Dear Madam:

You have called my attention to sections 48 and 50A of G. L. (Ter. Ed.), c. 149, as respectively amended and inserted in said chapter by St. 1935, c. 423, and have asked my opinion upon the following question:

"Is a person employed as a watchman or employed in maintaining fires in a fire or police station, a 'person employed in establishments other than those described in section forty-eight'; in other words, is a watchman or a man maintaining fires in a police station or in a fire station entitled to twenty-four consecutive hours of rest in every seven consecutive days?"

I answer your question in the negative. The context of said chapter 149, as amended, in which sections 45 to 52 thereof occur, including the new section 50A quoted in your letter, indicates that all of these sections were intended to apply to private employment only. The language of these sections, including said section 50A, also indicates that the legislature intended them to relate only to private employment as distinguished from public employment, which latter service is dealt with in detail in sections 25 to 44, as amended by said chapter 149. The word "establishments" as used in the phrase "every person employed as a watchman in establishments other than those described in section forty-eight, or employed in maintaining fires in such establishments" does not mean public buildings such as fire or police stations.

Very truly yours,
(signed)

PAUL A. DEVER
Attorney General"

In this connection the legislature of 1936 will be called upon to amend the existing law so that the statute will bring to such employees one day's rest in seven. Many of the orders issued were concerned with the section of the law requiring the posting of schedules containing a list of names of those required or allowed to work on Sunday and designating the day of rest for each. They also included the keeping of time books showing the names and addresses of employees and the hours worked by them on each day. Many of the police departments in the cities of the commonwealth furnished the department with the names of concerns given permits to do Sunday work and the reasons assigned for permission to work on Sunday because of labor called for by an emergency that could not reasonably have been anticipated. This work uncovered the fact that in some cases the work done was not of that nature that could be construed as in harmony with the Sunday law. In this connection it should be said here that the co-operation received from various police departments throughout the state was of great help to the inspection force in its checking up of establishments where Sunday work was permitted by the local authorities.

LIGHTING

During the year 242 orders were issued requiring compliance with the provisions of the lighting code and these have been complied with. The inspection work required in this connection protected employees from glare and provided better distribution of light. Improvements were made in the proper shading of lamps which increased the intensity of illumination in the work place and made lighting adequate at the entrance to and exit from the establishment. The accumulation of dust and dirt on lamps in some cases was found to impair the efficiency of the lighting system and regular cleaning of the equipment was urged. In many cases it was necessary to change the locality of the lighting source especially where polished surfaces caused eye fatigue and interference with vision. To maintain adequate light in the workroom tests were made of the lighting volume and advice given with regard to the height and location of lamps and the use of shades for reflectors. In the basements of mercantile establishments which are used largely for storage purposes sufficient lighting facilities are necessary to prevent injuries to employees by stumbling over obstructions in passageways. These places were inspected with the other parts of the establishment and careful attention given to the distribution of sufficient light in these work places.

PROVIDING SEATS FOR WOMEN AND CHILDREN

It was necessary to issue 44 orders during the year to manufacturing, mechanical or mercantile establishments requiring that women and children be furnished with seats as provided by statute. There was co-operation received in these matters and the orders complied with. Most of these were concerned with department stores in which the working force was increased to meet the demands of holiday trade or to handle the extra business caused by special sales. Conferences were held with the management when difficulties were experienced in the enforcement of this law. Employers contended in some cases that the work could not be done properly while the operator was sitting. These objections were removed and suitable seats provided when requirements of the law made it necessary. Attention was given

to the type of seating facilities provided in some establishments where the work was done exclusively in a sitting position. In some instances these were discovered to be unsuitable and did not provide for good posture. Better equipment was secured when the department required improved accommodations.

OCCUPATIONAL DISEASES

There were 290 cases of industrial diseases investigated during the year ending November 30, 1935, by the inspection force of this department. These include 242 men and 48 women. Five of the total number were fatal. In each instance the workplace was investigated and, when necessary, suggestions were made and orders issued to prevent recurrence. Co-operation was generally received. These cases are classified as follows:

Cases of Industrial Illness Investigated During the Year Ending November 30, 1935, by Disease, Age, and Sex

Illness	Total Cases	Total M. F.	16-17 M. F.	18-20 M. F.	21-30 M. F.	31-40 M. F.	41-50 M. F.	51-60 M. F.	61- M. F.	Fatal M. F.
Dermatitis	206	163 43	6 1	12 11	54 12	38 12	35 4	12 3	6 -	- -
Gas and fume poisoning	34	30 4	- -	1 1	12 2	11 1	4 -	1 -	1 -	- -
Lead poisoning	30	30 -	- -	1 -	5 -	13 -	8 -	3 -	- -	- -
Pneumoconiosis	7	6 1	- -	- -	1 -	3 1	1 -	1 -	- -	1 -
Silicosis	6	6 -	- -	- -	- -	- -	- -	5 -	1 -	2 -
Anthraxis	2	2 -	- -	- -	1 -	- -	- -	- -	1 -	2 -
Other dust diseases	2	2 -	- -	- -	1 -	- -	- -	- -	1 -	- -
Aniline poisoning	1	1 -	- -	- -	1 -	- -	- -	- -	- -	- -
Benzol poisoning	1	1 -	- -	- -	1 -	- -	- -	- -	- -	- -
Anthrax infection	1	1 -	- -	- -	- -	- -	1 -	- -	- -	- -
Totals	290	242 48	6 1	14 12	76 14	65 14	49 4	22 3	10 -	5 -

Dermatitis

There were 206 cases of dermatitis investigated during the year, affecting 163 men and 43 women. The following table is an illustration of these cases by industry, age and sex.

Dermatitis Cases Investigated During the Year Ending November 30, 1935, by Industry, Age, and Sex

Industry	Total Cases	Total M. F.	16-17 M. F.	18-20 M. F.	21-30 M. F.	31-40 M. F.	41-50 M. F.	51-60 M. F.	61- M. F.
Textile manufacturing	44	36 8	1 -	3 1	11 3	6 3	7 -	6 1	2 -
Tanneries	40	39 1	- -	2 -	13 -	9 1	10 -	4 -	1 -
Shoe manufacturing	28	18 10	2 -	2 1	5 4	6 4	2 1	- -	1 -
Food products	13	9 4	1 -	- -	3 1	2 1	2 1	1 -	1 -
Electrical products	12	4 8	- -	1 3	2 2	- 2	1 -	1 -	- -
Foundry and machine shop products	11	8 3	- -	2 -	1 -	5 -	3 -	- -	- -
Rubber products	11	9 2	1 -	1 -	2 -	3 -	3 1	- -	- -
Metal products	7	6 1	- -	2 1	3 -	1 -	- -	- -	- -
Printing and publishing	7	7 -	- -	- -	4 -	1 -	1 -	- -	1 -
Chemical manufacturing	6	5 1	- -	1 -	1 -	2 -	1 -	1 -	- -
Toy manufacturing	4	4 -	1 -	- -	1 -	- -	2 -	- -	- -
Furniture manufacturing	3	3 -	- -	1 -	1 -	1 -	- -	- -	- -
Paper products	2	1 1	- -	- -	1 -	- -	1 -	- -	- -
Matches	2	2 -	- -	- -	2 -	- -	- -	- -	- -
Clothing	2	1 1	- -	- -	1 -	- -	- -	1 -	- -
Automobiles	2	2 -	- -	- -	1 -	- -	1 -	- -	- -
Dress ornaments	2	2 -	- -	2 -	- -	- -	- -	- -	- -
Miscellaneous	10	9 1	1 -	- -	4 -	2 1	2 -	- -	- -
Total	206	163 43	6 1	12 11	54 12	38 12	35 4	12 3	6 -

Employees suffering from this illness were employed at the following occupations:
Textile Mills: Dye mixers, printers, sorters, washer tenders and fulling mill tenders.
Tanneries: Beamhouse workers, curers, lumpers, wet wheelers, and seasoners.
Shoe Manufacturing: Treers, stitchers, cementers, dressers and lining cleaners.
Rubber Products: Cutters, spreaders and machine operators.
Miscellaneous: Press cleaners, assemblers, sorters, platers, winders, labelers, solderers, finishers and press operators.

The causation was traced to the following conditions:
Textile Mills: Handling cloth and yarns, contact with alkaline solutions and contact with dyes.

Tanneries: Contact with seasoning mixtures, handling of wet chromed skins, and the using of many chemicals.

Shoe and Leather Products: Handling colored leathers and contact with cleaning fluids, dyes, cements and powders.

Rubber Products: Contact with irritants and handling of hot rubber.

Miscellaneous: Contact with metal dusts, acids, dyes, chemicals and other irritants.

Gas and Fume Poisoning

There were 34 cases of gas and fume poisoning investigated during the year: thirty men and four women. There was one fatal case. The following table shows these cases by industry, age and sex.

Gas and Fume Poisoning Cases Investigated During the Year Ending November 30, 1935, by Industry, Age, and Sex

Industry	Total Cases	Total M. F.	18-20 M F	21-30 M. F.	31-40 M. F.	41-50 M. F.	51-60 M. F.	61— M. F.	Fatal M. F.
Shipbuilding	7	7	—	1	—	4	—	2	—
Food products	5	2	3	—	1	2	—	1	—
Textile manufacturing	3	3	—	—	1	—	1	—	—
Auto assembling	3	3	—	—	2	—	1	—	—
Auto sales and service	2	2	—	—	1	—	—	1	—
Chemical manufacturing	2	2	—	—	—	2	—	—	—
Paper and pulp products	2	2	—	—	1	—	—	—	1
Miscellaneous	10	9	1	—	1	2	—	5	—
Totals	34	30	4	1	1	12	2	11	1

Employees suffering from this illness were employed as welders, laborers, metal finishers, mechanics, bleach mixers and automobile repairers.

Lead Poisoning

There were thirty cases of lead poisoning investigated during the year. All were men, none were fatal. A large number of these men were employed in auto assembling establishments where they were exposed to lead fumes and lead dust. The following table illustrates these cases by industry, age and sex.

Lead Poisoning Cases Investigated During the Year Ending November 30, 1935, by Industry, Age, and Sex

Industry	Total Cases	Total M. F.	18-20 M. F.	21-30 M. F.	31-40 M. F.	41-50 M. F.	51-60 M. F.	61— M. F.
Automobile assembling	18	18	—	—	2	—	11	—
Building operations	3	3	—	—	—	1	—	1
Foundries	2	2	—	—	2	—	—	—
Paint manufacturing	2	2	—	1	—	—	—	—
Miscellaneous	5	5	—	—	—	1	—	3
Totals	30	30	—	1	—	5	—	13

Changes in the industrial process in a large establishment devoted to automobile assembling brought out a condition which produced eighteen cases of incipient lead poisoning. The period of incapacity in such cases was brief in each instance. Sixty men were employed on the day and night shifts in this establishment at grinding and smoothing soldered metal bodies with coarse portable emery wheels and circular discs covered with carborundum powder. The process required that one pound and a half of the molten lead solder be applied to each car body. The operators worked at grinding the lead coated seams and joints. These joints were first cleaned by wiping them with cloths soaked in hydrochloric acid and the rough open joints and separated seams were filled with molten lead from an uncovered gas-heated pot, and also from long thick sticks of lead solder. A welding process was performed by the rapid application of an intensely hot flame torch caused by the combustion of oxy-acetylene and illuminating gases. Then the wet flux was washed off with a waxed rag. The muriatic acid was kept in small open containers. The hot welding flame vaporized the acid and as a result the eight soldering operators and the cleaners were breathing air which was heavily charged with concentrated and intensely irritating acid fumes. The concern employs permanently a plant physician and a high grade first aid room is maintained in charge of a regis-

tered nurse. It was necessary to install a new ventilating system providing for three spray booths equipped with 20 HP and 40 HP motors. The installation of the system cost in the vicinity of \$25,000 and it will cost \$7,000 a year to operate it. Through this means a constant flow of fresh air is brought in from the outside through the top and is drawn out at the bottom, the air being changed about seven times in a minute. The firm was very active in its co-operation with the department to comply with the law and provide adequate safeguard for the health of the employees. It was assisted by the best ventilating engineers available.

Pneumoconiosis

There were seven cases of pneumoconiosis investigated during the year. One of these proved fatal. Six of them were employed in the manufacture of asbestos brake and clutch linings. The weaving of asbestos gives rise to the creation of an irritant dust and some of it finds its way into the workroom notwithstanding that every precaution is taken for its control. This plant is inspected every three months and much has been accomplished to diminish exposure to this hazardous employment. An operator of an abrasive wheel in the manufacture of celluloid novelties was exposed to a slight dust condition. His physician expressed the opinion that the inhalation of this dust led to his diagnosis of this disease. An exhaust hood was installed in the working place and this device proved effective in preventing exposure of the workman. The period of incapacity in this case was very brief.

Silicosis

There were six cases of silicosis investigated during the year. Three of these were fatal. Most of these men were employed in foundries, around sand-blasting machines and in general worked in a very dusty atmosphere.

Anthracosis

There were two alleged fatal cases of anthracosis investigated during the year. These men worked for coal concerns. They were employed shoveling coal and were exposed to much fine and coarse coal dust. Compensation was denied by the insurer to one of these men and the Department of Industrial Accidents, after a hearing, decided that the death was not casually related to any condition either caused or aggravated by employment, and the claim for compensation was dismissed. In the other case, claim for compensation has been filed but the case has not yet been heard by the Department of Industrial Accidents.

Miscellaneous Dust Diseases

There were two other cases of dust diseases investigated. One man was employed as a painter. He scraped rusty pipes and inhaled a great deal of rust and sandpaper dust. The other was employed in a large bakery and worked around the mixing machines. Flour was poured through these machines and made a condition which caused the employee to suffer from the inhalation.

Aniline Poisoning

One case of aniline poisoning was investigated. The employee poured aniline into a hooded tank provided with a fan draft. Some of the aniline spilled and soaked through his clothes. His skin absorbed the aniline, resulting in general systemic poisoning. Because of this experience, rigid precautionary regulations have been made in this establishment, and soap, towels and shower bath facilities have been provided. Arrangements have been made to furnish employees in this work with suitable changes of clothing.

Benzol Poisoning

One case of benzol poisoning occurred during the year. This man cleaned machines with a solvent that contained 5% benzol and he became ill from the fumes. The company employing this man immediately distilled all of the solution they had on hand and removed all the benzol.

Anthrax Infection

There was one case of anthrax infection in this commonwealth during the year. It occurred in a leather finishing establishment where 250 men were employed.

This establishment was equipped with a good first aid room with a competent attendant in charge and inspections were made several times in a year. The employee was a beam house worker and he trimmed the sharp edges of the goat skins with a knife. The attending physician discovered symptoms of anthrax and the diagnosis was confirmed by the bacteriological examination. After treatment at the hospital he quickly recovered his usual health.

STRUCTURAL PAINTING

During the year 1,627 painters submitted to examination to qualify as painter riggers. Of this number, 1,234 passed successfully and 393 failed. Successful applicants were authorized under the rules to hang the staging or supervise the built-up scaffolding which may be needed in the various operations of structural painting. There were 2,318 certificates of painters' rigging issued. Of these 1,552 were renewals and 766 original registrations. Inspection was made of equipment used by the owners and 1,035 pieces of rigging were tagged as unsafe for use. Mr. Herbert J. Hull was appointed during the year to the Board of Examiners and had active participation in this work. There was a total of \$2,797.50 received from these persons covering examinations and registration of rigging and this amount was forwarded to the treasurer of the commonwealth.

Petition was received from the Massachusetts State Conference of the Brotherhood of Painters on May 13, 1935, seeking certain amendments to the rules and regulations pertaining to structural painting. In joining with this organization the Society of Master Painters and Decorators of Massachusetts, Incorporated, gave notice to the department of its approval of this course. Thereupon a committee was formed to give consideration to the proposed changes as provided in section 7, chapter 149 of the General Laws. The committee as finally organized consisted of the following: Mr. Ivory H. Morse, 22 Albion Street, Hyde Park; Mr. C. David Peterson, 5 Ivernia Road, Worcester; Mr. R. L. Leonard, 75 Landseer Street, West Roxbury, were named to represent employers. Mr. Marcus R. Dennison, 19 Monponset Street, Mattapan; Mr. P. H. Triggs, 21 Sanford Street, Springfield; and Eugene Larrivee, 98 Concord Street, Lawrence; were appointed to represent the employees. This committee met regularly and finally recommended certain changes in the rules and regulations which were discussed at a public hearing on October 3, 1935, as required by statute. The rules as revised were adopted by the department and will become effective on December 10, 1935.

As a step in the direction of making the administration of these rules without expense to the commonwealth, increases were made on the established fee rates for this service. They were to provide: that a fee of five dollars should be paid in advance for each original certificate of registration issued, and fifty cents for annual renewals; that there should be a qualified rigger on every painting operation. Examinations conducted by the department should be open to any person not less than eighteen years of age who has had at least three years experience in painting operations where swing staging and scaffolds were used, on application and payment of two dollars. A certificate shall be issued for one year to each applicant who satisfactorily passes such examination. A fee of fifty cents shall be charged for the renewal of a certificate. Applicants who fail to pass may be re-examined upon payment of a fee of one dollar for each re-examination. Certificates may be revoked by the department if the holder operates in violation of the rules and regulations, or for wilful negligence that endangers the safety of the workmen, or directing rigging operations while under the influence of liquor. These amendments undoubtedly will strengthen the work for the prevention of accidents in the structural painting industries.

LABORERS' VACATION LAW

The legislature of 1914 enacted the laborers' vacation law. In substance it provided that all persons classified as laborers, or doing the work of laborers and regularly employed by cities and towns for more than one year should be granted a vacation of not less than two weeks without loss of pay during each year of their employment. This act became operative only in such cities and towns as adopted its provisions by referendum vote. In 1927 the legislature amended this law with certain provisions which were designed to make clearer the requirements for

laborers' vacations; and again for the same reason the statute was amended in 1932. Laborers' vacations have become a tangible part of the voluntary employment contract of municipal employees. Failure to keep such a contract with an employee is as reprehensible as to fail to pay the wages which he has earned.

Building inspectors were instructed in the course of their visits to cities and towns to make inquiry of the proper authority as to the granting of laborers' vacations. Of sixty-one cities and towns visited, it was found that forty-eight had accepted the act under which vacations are given. Thirty-seven of these were complying with the law. In some cases no vacations were given because the officials were not aware of the fact that this law must be complied with. In each case the statute was fully explained and suitable action taken by the local authorities.

During the year conferences were held with officials of cities and towns where this law was in question and difficulties were removed when explanation was made. There is no penalty provided for in the statute for a municipal official or other persons who violate the laborers' vacation law. The department, in the enforcement of this statute, found it necessary to bring action in the Supreme Judicial Court to protect the rights of employees who have qualified for such vacations under the law. In the city of Springfield the superintendent of public buildings was the respondent in a case in which it was alleged vacations were refused laborers. In this connection the superintendent had charge of the employment of janitors, firemen and other laborers employed in connection with the public buildings of the city. An employee who had been suspended from his work for alleged reason of economy appeared to have actually worked for the city for thirty-two weeks in the aggregate for the preceding twelve months. Request was made by the department to grant the annual vacation which the employee was entitled to under the statute and this request was denied. Whereupon the department petitioned the Supreme Judicial Court that a writ of mandamus should issue against the respondent commanding him to authorize and grant the two weeks' vacation with pay. On December 20, 1933, a single justice ordered that a writ of mandamus issue under these circumstances as prayed for by the Department of Labor and Industries. An appeal was thereupon made to the full court and because of its importance in the enforcement of this statute and it being the first decision on the principles involved in the laborers' vacation law, it is given here in full.

OPINION OF THE SUPREME JUDICIAL COURT

Commissioner of Labor and Industries *vs.* Frank J. Downey.

Hampden. Submitted September 18, 1934. — Opinion filed April 30, 1935.

Present: Rugg, C.J., Crosby, Pierce, Field & Lummus, JJ.

Municipal Corporations, Suspension of Employee, Dismissal of Employee.

Exceptions, saved by the respondent in a petition for a writ of mandamus in the Supreme Judicial Court for the county of Hampden, from orders by Wait, J., overruling a demurrer to the petition and directing that the writ issue.

Rugg, C.J. This petition for a writ of mandamus is brought to enforce the provisions of G. L. (Ter. Ed.) c. 41, s. 111, as amended by st. 1932, c. 109. The duty to enforce that statute is cast upon the petitioner. The provisions of that section, so far as here material, are in these words: "In any city which accepted said chapter the city council may determine that a vacation of two weeks without loss of pay shall be granted to every person regularly employed by such city as a common laborer, skilled laborer, mechanic or craftsman. If such vacations are authorized, they shall be granted by the heads of the executive departments of the city at such times as in their opinion will cause the least interference with the performance of the regular work of the city. A person shall be deemed to be regularly employed, within the meaning of this section, if he has actually worked for the city or town for thirty-two weeks in the aggregate during the preceding twelve months, notwithstanding that he has ceased, otherwise than by voluntary withdrawal or dismissal for cause in accordance with law, to be in the employ of such city or town.

It is alleged in the petition that the respondent is the head of the executive department having charge of the employment of janitors, firemen and other laborers in connection with public buildings in the city of Springfield; that said

s. 111 relating to vacations of janitors and laborers is operative in Springfield; that one Donovan, employed as a janitor of a public building in that city, has been suspended by the respondent for reasons of economy but has actually worked for the city for thirty-two weeks in the aggregate during the preceding twelve months; that his request for an annual vacation of two weeks without loss of pay has been denied by the respondent solely on the ground that Donovan, having been suspended for reasons of economy, has been dismissed "for cause" within the meaning of those words in said s. 111. The respondent demurred to the petition. The single justice ordered that the demurer be overruled and that the writ issue as prayed for. Exceptions of the respondent bring the case here.

The petition alleges that Donovan has been "duly suspended for reasons of economy." That must be accepted as the fact because it is admitted by the demurrer. The governing statute requires the vacation of two weeks without loss of pay unless there has been severance of his employment by "dismissal for cause in accordance with law." The sharp distinction is thus drawn between suspension and dismissal. Suspension in this context means "a temporary withdrawal or cessation from public work as distinguished from a permanent severance from the service accomplished by removal." *Bois v. Mayor of Fall River*, 257 Mass. 471, 472. The latter part of the sentence just quoted defines the signification of dismissal as used in said s. 111. In a somewhat similar context dismissal has been said to denote "complete separation" from a public employment. *Boody v. School Committee of Barnstable*, 276 Mass. 134, 138. The distinction between suspension and dismissal thus is one of substance and not of form. Suspension imports the possibility or likelihood of return to the work when the reason for the suspension ceases to be operative. Dismissal imports an ending of the employment. In its effects it is commonly the equivalent of removal. *Dunn v. Commissioner of Civil Service*, 279 Mass. 504, 510.

On this record it appears that there has been no dismissal of Donovan, but only a suspension. Doubtless suspension for reasons of economy was for a just cause. That cause may have warranted a dismissal. *McCabe v. Judge of District Court*, 277 Mass. 55. There has been, however, no dismissal for that or any other cause. It follows that Donovan falls within the class entitled to a vacation of two weeks without loss of pay under said s. 111.

Exceptions overruled.

S. L. Fein, Assistant City Solicitor, for the respondent.

J. E. Warner, Attorney General, and C. F. Lovejoy, Assistant Attorney General, for the petitioner.

The city of Springfield, upon the publication of this decision, paid up the sum of approximately \$8,000 in complying with the requirements of this statute and the decision of the supreme court. There remains but one or two places where controversies regarding the provisions of this statute have not been fully met but the decision did much to establish the right of these employees to vacations without loss of pay under the conditions defined by statute.

WEEKLY PAYMENT LAW

The administration of this statute is of great service to the working people of the state. The amounts involved were usually small in the individual case and to secure legal assistance would mean the imposition of a burden upon the employee. Practical help is given to workmen who have been victimized in this respect and special effort was made in many cases where needy circumstances were apparent to urge the employer to speedily pay the amount due. The regular practice in such cases was continued during the year, the facts in each case entered upon forms and records made which were filed for future reference.

In the record there are questions designed to establish the jurisdiction of the department and to meet the requirements of the statute in case of prosecution. Notification is given the employer by correspondence, of the amount due and if payment is not promptly made the special investigator of the division may seek personal interviews. This practice meets with the encouragement of the courts for it brings to their attention a complaint which is usually accompanied by the essential facts. Special effort was made to reconcile parties when it appeared that

a dispute existed as to the amount due for service. There was a total of 511 conferences held for this purpose and these were attended frequently by the attorney for the defendant. It is customary to hold these meetings between the employer and the employee, and a representative of the department, on Thursday and Friday afternoons, between two and four o'clock, to determine what procedure would be taken where it appears conflicting statements are made by the employee or his employer, in regard to wages owed. As a result of this practice either the employer agreed to pay the wages of the employee or the case presented to the court with the differences between the parties reduced to a minimum. The sum of \$50,365.35 was paid by employers to workmen after notification was given that complaint was filed with the department alleging failure to comply with the requirements of the weekly payment law. During the year, 4,652 persons called at the offices of the department believing they had cause to complain because of failure to receive their wages. The department assisted 524 persons in making application for complaint under the provisions of section 149, chapter 149 of the General Laws. After hearings before the clerks and in many cases before the justices, complaints were granted in 99 cases and the following dispositions made: 70 guilty; 54 filed; wages paid; 7 probation; 8 defaulted; 1 defendant fined \$50 — jailed for non-payment of fine; 24 dismissed (19 wages paid, 4 lack of prosecution, 1 dispute); 5 not guilty.

Complaint was denied by the courts in 425 cases for the following reasons: 106 parties did not appear; 65 disputes; 3 defendants outside state; 137 where agreement was reached between parties; 7 insufficient evidence; 4 contracts; 1 complainant accepted promissory note; 1 defendant was not officer of corporation; 96 wages paid; 3 valid set-offs; 1 partnership; and 1 bankruptcy.

There were 2,687 complaints approved by the department and of this number 1,744 have reported payment in full. In 1,965 other cases which were not approved, decisions underlying such action were as follows: 576 no jurisdiction; 124 were because of contractual relations; 68 were employed upon farms; 516 made inquiry only concerning the law; 152 were domestics; 106 were outlawed; 82 were disputed cases; 80 were involved with N.R.A. projects; 59 established valid setoffs; 84 were commissions involved with civil court; 118 had insufficient data. In the report of the legal department will be found the record of court proceedings in these matters.

REPORT OF THE LEGAL DEPARTMENT

Mr. Joseph Monette, counsel for the Department of Labor and Industries, reports on the legal activities for the year as follows:

679 Prosecutions: Consisting of:

415 wage complaints; 195 women and minor violations; 57 violations of painting rules; 6 violations of toilet rules; 2 violations of building rules; 4 violations of public works.

Court Findings: 468 guilty; 53 not guilty; 119 dismissed; 25 defaults; 14 not prosessed.

468 Guilty cases consisted of the following violations:

255 Wage complaints.
162 Women and minor violations.
43 Painting rules violations.
6 Toilet rules violations.
2 Building rules violations.

53 Not guilty findings consisted of the following violations:

26 Wage complaints.
14 Women and minors violations.
13 Painting rules violations.

119 Dismissed cases were as follows:

98 Wages paid.
5 Wages — lack of prosecution.
15 Illegal employment of minors.
1 Employment of minor on milk truck before 5 A.M.

25 Defaults included:

- 24 Wage complaints.
- 1 Violation of painting rules.

14 Not Prossed cases were:

- 7 Wages paid.
- 4 Public works violations.
- 3 Women and minors violations.

The penalties in the 468 Guilty findings were as follows:

255 Wage Complaints:

- On 5 counts two defendants were sentenced to two months each in the House of Correction.
- On 10 counts four defendants were sentenced to House of Correction — term 20 days — 3 months. Suspended.
- On 2 counts a defendant was fined \$75.
- On 6 counts two defendants were fined totals of \$50 each.
- On 1 count a defendant was fined \$50 — payment suspended and placed on probation.
- On 6 counts a defendant was fined \$10 on each count.
- On 2 counts a defendant was fined \$15 on each count.
- On 92 counts 36 defendants' cases were placed on probation.
- On 131 counts 53 defendants' cases were placed on file.

162 Women and Minor Violations:

- On 9 counts 3 defendants were sentenced to House of Correction — terms from 5 days to 2 months. Suspended.
- 6 counts illegal employment of minors:
 - 1 count employment of minor after 10 P.M.
 - 1 count failing to procure certificate for minor.
 - 1 count overtime employment.
- On 6 counts a defendant was fined a total of \$300:
 - 6 counts employment at time other than stated on the printed notice.
- On 1 count a defendant was fined \$100 — payment suspended — probation:
 - 1 count employment at time other than stated on the printed notice.
- On 5 counts a defendant was fined \$70 — court costs:
 - 1 count failing to post a time notice.
 - 1 count failing to procure a certificate for minor.
 - 1 count overtime employment.
 - 1 count employment of minor after 6 P.M.
 - 1 count employment of minor after 10 P.M.
- On 4 counts a defendant was fined a total of \$60:
 - 2 counts employment at time other than stated on the printed notice.
 - 2 counts employment of minors after 10 P.M.
- On 3 counts a defendant was fined \$60 — payment suspended — probation.
 - 2 counts employment of minors after 10 P.M.
 - 1 count failing to post a time notice.
- On 2 counts a defendant was fined \$50 — payment suspended — probation.
 - 2 counts employment at time other than stated on the printed notice.
- On 73 counts 13 defendants were each fined totals of \$50:
 - 33 counts overtime employment.
 - 23 counts employment at time other than stated on the printed notice.
 - 12 counts failing to post time notices.
 - 3 counts failing to procure certificates.
 - 1 count illegal employment of minor.
 - 1 count failing to post a shift list.
- On 13 counts 2 defendants were each fined \$25:
 - 4 counts employment at time other than stated on the printed notice.
 - 3 counts employment of minors under 21 where intoxicants were sold and handled.
 - 3 counts failing to procure certificates for minors.

- 2 counts employment of minors after 10 P.M.
- 1 count employment of minor after 6 P.M.
- On 1 count a defendant was fined \$20:
- 1 count failing to procure certificate for minor.
- On 5 counts a defendant's case was filed on payment of \$8 court costs:
- 5 counts employment at time other than stated on the printed notice.
- On 2 counts a defendant's case was placed on probation.
- 1 count illegal employment of minor.
- 1 count employment of minor after 6 P.M.
- On 38 counts 12 defendants' cases were filed:
- 13 counts overtime employment.
- 8 counts failing to post time notices.
- 4 counts illegal public exhibition of children.
- 4 counts employment at time other than stated on the printed notice.
- 4 counts failing to procure certificates for minors.
- 3 counts illegal employment of minors.
- 1 count employment of minor after 6 P.M.
- 1 count employment of minor after 10 P.M.

43 Violations of Structural Painting Rules:

- On 27 counts five painting contractors' cases were filed.
- On 5 counts a defendant was fined \$50 — payment suspended — probation.
- On 8 counts 2 defendants were each fined \$10.
- On 3 counts a defendant was fined a total of \$15.

6 Violations of Toilet Rules:

- On 1 count a defendant was fined \$50.
- On 2 counts two defendants were each fined \$50 — payment suspended — probation.
- On 1 count a defendant was fined \$25.
- On 1 count a defendant's case was filed on payment of \$25 court costs.
- On 1 count a defendant's case was filed.

2 Violations of Building Rules:

- On 2 counts each partner was fined \$20 each on the first count, the second count filed.

In the 53 Not Guilty Findings, dispositions based on following reasons:

26 Were Wage Complaints:

- 11 wages paid.
- 4 where defendants were officers of corporation in name only.
- 6 where disputes existed.
- 2 where complainants were found to be partners.
- 1 where complainant was found to be officer of corporation.
- 1 where valid set-off existed.
- 1 where a loan was involved.
- 14 were women and minors violations — insufficient evidence.
- 13 were violation of painting rules — partnership existed; where defendant was the only owner; where defendant was not a party to the contract of the job.

In the 119 Dismissed cases, findings were based on the following:

- 98 wages paid.
- 5 lack of prosecution.
- 15 illegal employment — insufficient evidence.
- 1 employment of minor before 5 A.M. (evidence boy was hired by fellow worker).

In the 14 Not pressed cases in the superior court:

- 7 wage complaints — wages paid.
- 4 public works violations — law complied with.
- 3 women and minors — law complied with.

In the 468 Guilty findings, violations occurred in the following Industries:

255 Wages:

- 71 counts violation of the weekly payment law occurred among contractors.
- 42 counts violation of the weekly payment law occurred in manufacturing establishments.
- 42 counts violation of the weekly payment law occurred in mercantile establishments.
- 37 counts violation of the weekly payment law occurred in theatres.
- 24 counts violation of the weekly payment law occurred among express companies.
- 16 counts violation of the weekly payment law occurred in mechanical establishments.
- 9 counts violation of the weekly payment law occurred in workshops.
- 7 counts violation of the weekly payment law occurred in foundries.
- 4 counts violation of the weekly payment law occurred in bakeries.
- 1 count violation of the weekly payment law occurred by musician.
- 1 count violation of the weekly payment law occurred by a janitor.
- 1 count violation of the weekly payment law occurred in a hotel.

162 Women and Minor Violations:

- 77 counts occurred in mercantile establishments.
- 49 counts occurred in manufacturing establishments.
- 26 counts occurred in mechanical establishments.
- 4 counts occurred in theatres.
- 3 counts occurred in workshops.
- 2 counts occurred in the home (pocketbook making).
- 1 count occurred in service of a contractor.

43 Counts — Violation of Painting Rules, occurred among contractors.

6 Violations of Toilet Rules:

- 2 counts in workshops.
- 2 counts in mechanical establishments.
- 2 counts in manufacturing establishments.

2 Counts — Violation of building rules, occurred by a contractor.

For the year ending November 30, 1935, appeals were taken from lower court decisions on 165 counts by 32 defendants for violations of the labor laws. As yet 104 counts have not been reached for trial by the superior court. Sixty-one counts have been reached and disposed of as follows:

48 Counts: Wage Complaints:

Lower Court

- On 1 count defendant was sentenced 1 month;
- On 3 counts defendant was sentenced 1 month;
- On 1 count defendant was fined \$50;
- On 3 counts defendant was sentenced 3 months;
- On 1 count defendant was fined \$50;
- On 1 count defendant was fined \$25;
- On 5 counts defendant was fined \$250;
- On 1 count defendant was fined \$50;
- On 3 counts defendant was fined \$150;
- On 1 count defendant was fined \$50 and sentenced 1 month;
- On 11 counts defendant was fined \$50 on 1 count, others filed;
- On 1 count defendant was fined \$25;
- On 4 counts defendant was sentenced 4 months;
- On 3 counts defendant was sentenced 2 months;
- On 1 count defendant was fined \$50;
- On 2 counts defendant was sentenced 1 month;
- On 3 counts defendant was fined \$150;
- On 1 count defendant was fined \$25;
- On 1 count defendant was fined \$10;
- On 1 count defendant was fined \$50;

Superior Court

- Wages paid—Guilty—Filed.
- Wages paid—Guilty—Filed.
- Guilty—Placed on probation.
- Wages paid—Not prossed.
- Guilty—Placed on probation.
- Wages paid—Guilty—Filed.
- Guilty—Fined \$50.
- Wages paid—Guilty—Filed.
- Wages paid—Guilty—Filed.
- Guilty—Placed on probation.
- Not prossed and returned to district court.
- Wages paid—Guilty—Filed.
- Guilty—Continued generally.
- Guilty—Placed on probation.
- Guilty—Placed on probation.
- Guilty—Wages paid—Filed.
- Not prossed—Wages paid.
- Guilty—Filed—Wages paid.
- Guilty—Placed on probation.
- Not guilty—Disputed evidence.

11 Counts: Violations Women and Minor Laws:

Lower Court

- On 6 counts defendant was fined \$300;
- On 5 counts defendant was fined \$130;

Superior Court

- Guilty—Fined \$50 on 1 count, others filed.
- Guilty—Fined \$70—court costs.

*2 Counts: Violation Toilet Rules:**Lower Court*

- On 1 count defendant was fined \$50;
- On 1 count defendant was fined \$50;

Superior Court

- Guilty—Fined \$25.
- Guilty—Fined on payment of \$25
—court costs.

The following are appealed and will not be tried in the superior court until the January sitting:

Non-payment of Wages:

- On 76 counts a defendant corporation was fined \$3,800 — \$50 on each count.
- On 8 counts a defendant was fined \$25 on each count.
- On 2 counts a defendant was sentenced 2 months on 1 count, fined \$50 on other.
- On 2 counts a defendant was sentenced 2 months.

Women and Minor Violations:

- On 2 counts a defendant was fined \$50 on each count.
- On 4 counts a defendant was fined a total of \$350.
- On 6 counts a defendant was fined a total of \$325.
- On 1 count a defendant was fined \$75.
- On 3 counts a defendant was fined \$110.

SPECIAL INVESTIGATIONS

A sanitary investigation was made of establishments in the needle trades during the year. This included all the factories in Greater Boston and extended to Fall River, Worcester, Springfield and Pittsfield. It comprised a study of the means of ventilation provided, the maintenance of proper washing and toilet facilities, the furnishing of lockers where the law required it, lighting facilities, first aid treatment, and information relating to industrial accidents and diseases. Where it was found necessary, orders were issued by the department requiring compliance with the law on these matters and the same was promptly given. Incomplete medical chests were found in eight establishments and owners were ordered to supply the missing articles required by law. Providing guards for low shafting on sewing machines was required in some instances. Information was secured relating to industrial accidents and diseases. A total of 2,219 persons were employed, including 336 men and 1,883 women. Fifty-three of these were under eighteen years of age.

The same plan was followed in the leather tanning industry and survey of conditions in tacking and japaning operations in these establishments made. This included a close examination of work places where 1,781 persons were employed. Infections caused by the use of tacks in the mouth of the employee was a paramount item in this investigation. Workmen engaged in operations where it was necessary to use tacks in the course of their employment had claimed that the practice of using them from the mouth was necessary, and responsible for infections, in some cases resulting in cancer. In this study, however, the investigation did not establish such facts. Employment in modern or old housing conditions was a feature of this investigation and the importance of first aid treatment at the earliest time was stressed to the employees and those representing management.

Investigation was made of employment conditions in the cranberry industry, following a conference held July 2, 1935, between representatives of the Cape Cod Cranberry Growers Association and the Department of Labor and Industries. Much attention was given to recommendations which were made by the department to this association including sanitation in general; the furnishing of pure drinking water or the safeguarding of the water supply; the methods employed for sewage disposal; sleeping quarters in buildings provided for the pickers and other workers; the kitchen quarters and other general requirements of this nature. Included in this work was information with regard to compliance of laws regarding school attendance of children, providing suitable medical supplies for workers on bogs, prohibiting the employment of girls under eighteen years of age at scooping berries, prohibiting the carrying of filled boxes by women and children, and requiring more uniformity in wage rates. Bogs, including screen houses, visited were located in the towns of Rochester, Marion, Wareham, Carver, and Dennis. The investigation disclosed that much co-operation was given by the employers in maintaining

the agreement between the cranberry growers association and the Department of Labor and Industries.

THE WORK OF BRANCH OFFICES

The branch offices located in Fall River, Lawrence, Pittsfield, Springfield and Worcester continue to function to the needs and interests of the industrial population in each vicinity. In these offices are clerks, regularly on duty, and inspectors available for efficient and prompt service. For the convenience of employers and employees engaged in the painting business in these various localities, examinations for painter riggers are held periodically in the branch offices. This plan administers to the convenience of both groups and is effective in securing compliance with the requirements for the prevention of accidents in this industry. In each office are found the bulletins containing all the provisions of the labor laws including the rules and regulations with regard to sanitary requirements for industrial establishments; the time notices which must be posted in connection with the employment of women and minors; and the schedules provided for by the statute requiring one day's rest in seven for certain employees. Complaints in these different communities are made to the branch office and this system enables prompt attention and uniform administration in matters of law enforcement. Daily record is made of all requests received from the public and when it is apparent that the matters presented are beyond the province of the branch office they are referred to the main office for final action. Much is accomplished by this system for the efficiency of labor law administration. Especially is the branch office helpful to those individuals who suffer through violations of the weekly payment law. Here they receive personal attention and advice in their individual cases and always with the purpose of furnishing them with assistance in securing the wages unlawfully withheld from them by those who fail to comply with the law in this connection.

NEW DUTIES ASSIGNED BY THE LEGISLATURE OF 1935

In a session of the Massachusetts legislature, the loneest in the history of the commonwealth, the general court engaged continually from January 2nd to August 15th, 1935. More labor measures were adopted during this session than in any similar period before and this was undoubtedly due to the fact that Governor James M. Curley gave these measures his undivided support. Most of these provisions were for the purpose of strengthening existing laws and extending their coverage in new fields of employment. Brief reference is made herewith to these enactments which will indicate the nature and purpose of the new administrative duties:

Chapter 200: An act amending the law relative to hours of labor for women and children in manufacturing and mercantile establishments. This enactment brought within the statutory requirements restricting the hours of labor for women, certain employees who previously were not included and applies now to women and children who may be employed or permitted to work in or in connection with industrial and other establishments. It became operative July 22, 1935.

Chapter 203: An act relative to the employment of minors under fourteen in radio broadcasting stations. This became operative July 22, 1935.

Chapter 208: An act relative to ventilation of factories, workshops, and garages. Through this legislation garages were included in requirements for the removal of fumes, gases and dusts from the workroom. It became operative on July 22, 1935.

Chapter 228: An act authorizing the payment of fees to physicians for certain medical reports to the department of labor and industries and regulating the use of information contained in such reports. This measure is designed to defray expenses in connection with preparing and filing by physicians reports of individual cases of industrial disease. It became operative September 3, 1935.

Chapter 350: An act further amending the law relative to the weekly payment of wages. This extends the coverage of the statute to private and domestic service and to service as farm laborers. It was also made to apply in many other fields to which the law was not previously applicable. It became operative on September 11, 1935.

Chapter 363: An act requiring the installation of pick clocks, so called, on looms in certain textile factories. This was an amendment to section 156, chapter 149 of the General Laws and provides that in factories operating the looms on a piece

rate basis, pick clocks shall be placed on each loom, other than a gang loom, so called, in operation on work other than carpet weaving or elastic web weaving, and each weaver shall be paid according to the number of picks registered on said clock. This act takes effect on December 31, 1940.

Chapter 410: An act relative to the attachment of wages.- This new legislation is important to the division since it has a bearing upon the administration of the weekly payment law. An amount not exceeding twenty dollars out of the wages due the defendant when labor or personal services are attached for a debt or claim must be reserved in the hands of the trustee and exempt from such attachment. It became operative October 10, 1935.

Chapter 423: An act making the law relative to one day's rest in seven applicable to certain watchmen and men employed in maintaining fires in nearly all places of employment. This act became operative October 14, 1935.

Chapter 429: An act authorizing the commissioner of labor and industries to suspend until April 1st, 1936, the six o'clock law, so called, relative to the employment of women in the textile industry. It became operative October 17, 1935.

Chapter 444: An act establishing a forty-eight hour week for certain employees of the commonwealth. This has application to laborers, workmen and mechanics, ward attendants, ward nurses, industrial and occupational therapists and watchmen, and of employees in the kitchen, dining room and domestic services, in state institutions; and of officers and instructors of state penal institutions. Any person whose hours of labor are regulated by this act and whose presence is required at any such institution seven days a week shall be given at least four days off in each month, without loss of pay, in addition to the regular annual vacation. The words "hours of labor" as used in this section shall not be deemed to include any period of time during which a person is in his living quarters wherever located, although his presence there is required for the purpose of exercising a measure of supervision over patients or inmates through availability for duty during such time. This section shall not prevent the superintendent, warden, or executive officer from requiring the services of any person in any emergency where the health or safety of patients or inmates would otherwise be endangered, or in any extraordinary emergency, or in apprehending an escaped inmate, nor shall it apply to the hours of labor of any person whose position entitles him to family maintenance as a part of his compensation. It became operative October 23, 1935.

Chapter 461: An act providing for preference to be given to veterans and others in the employment of mechanics, teamsters, chauffeurs and laborers on certain public works, and providing also for the prior determination by the commissioner of labor and industries of the minimum wages to be paid to said employees on such public works. This statute was designed to replace the former prevailing rate of wages law which was declared unconstitutional by the Massachusetts Supreme Court. Its requirements increase substantially the administrative work of the division. The purpose of this statute is to make conditions uniform as the basis for bidding and thus promoting the best relations between contractors and employees in the public interest. The commissioner is required to prepare for use of public officials or public business who may be called upon to cause the construction of public works, a list of the several jobs usually performed on such works by the employees. He may classify such jobs and revise the classification from time to time if it is deemed advisable. Prior to awarding a contract for the construction of public works either the public official or public body shall submit to the commissioner a list of the jobs upon which employees are to work and he shall determine the same and furnish a schedule of such rate or rates of wages to the official or public body as soon as his determination has been made. In advertising for bids, the awarding official or public body shall incorporate the schedule in the advertisement and shall furnish a copy of the schedule to any person requesting the same. The schedule shall be made a part of the contract for such work and continue to be the minimum rate of wages for the employees during its life. Any person engaged in the construction of this public work shall cause a legible copy of the schedule to be kept posted in a conspicuous place on the site of the public works during the life of the contract. Whoever pays less than this rate or rates shall forfeit to the commissioner a sum equal to twice the difference between said rate or rates and the wages actually paid to the employees, the sum to be recovered by the commissioner

in an action of contract for the benefit of the employees. It is further provided that whoever, for himself or as representative, agent or officer of another, shall take or receive for his own use or the use of any other person, as a rebate, refund, or gratuity, or in any other guise, any part or portion of the wages paid to any employee for work done or service rendered on said public works, shall be punished by a fine of not less than one hundred nor more than five hundred dollars, or by imprisonment for not more than six months, or both. An appeal from the rates fixed by the commissioner is provided for in the statute and the associate commissioners may reclassify the employment and change the rates if they decide to do so within three days after a hearing. Every contractor shall furnish the department, upon its request, the register which must be kept of all mechanics and other employees, showing the name, address and occupational classification of each employee on said works, the hours worked by and the wages paid to each such employee. These new provisions of law were set up in the belief that they would effect a wholesome change in the relationship between employers and employees in the construction, repair or alteration of public works. This law became operative on October 30, 1935, and in a single month 207 projects were filed with an estimated cost of \$31,388,864 for P.W.A. projects throughout the state. At the same time on contracts for the Massachusetts Department of Public Works, 388 projects involved estimated costs of \$3,396,050 and a small number by other state departments including the Department of Mental Diseases, Department of Public Welfare, Department of Correction, Department of Conservation and Department of Public Safety, making a total for all of the projects in the month of November of 668 projects at an estimated cost of \$34,934,814.

It is required by the rules and regulations relating to applicants under the federal emergency administration of public works that all of its plans must contain minimum or other wage rates required to be predetermined by state law or local ordinance and incorporated in the appropriate contract documents. In the absence of applicable law or ordinance, the applicant shall predetermine minimum wage rates, in accordance with customary local rates, for all the trades and occupations to be employed on the project, and submit such rates to the state director for approval before incorporating them in the appropriate contract documents.

Chapter 463: An act further regulating the sale, transportation, storage and use of benzol and its compounds. This provides for more effective safeguards in preventing exposure to the handling of these industrial poisons by employees. It became operative October 31, 1935.

Chapter 466: An act relative to the payment of annuities to dependents of inspectors of the department of labor and industries killed or dying from injuries received or hazards undergone in the performance of duty. It became operative November 4, 1935.

Each one of these new statutes adds to the responsibility and work of the inspection staff.

RETIREMENT OF ELMER INGAMAR CHRISTENSON

September 1, 1935

Elmer Ingamar Christenson, industrial inspector, was appointed to the Massachusetts District Police on July 8, 1912, and afterwards transferred to the State Board of Labor and Industries, on October 16, 1913. He continued in this line of work with the Department of Labor and Industries when it became reorganized in 1919 and was a competent official who was reliable in every detail. He served in the Spanish American War with Company A, Second Massachusetts Regiment. His industrial experience included his employment as a foreman for two years by one of the leading building construction contractors in the city of Worcester; and for a period of eight years he supervised the work of others in the hardware manufacturing line. For two years before his appointment as industrial inspector he was a member of the police force in the city of Worcester. Owing to an arthritis affliction he found it necessary to leave the service, to the great regret of his associates in the department.

JOHN RANDALL DEXTER

On July 7, 1935, after a period of twenty-four years in the service of the Commonwealth, Mr. Dexter passed away at his home in Stoughton. He was chief

inspector in this division and left behind him a reputation of high accomplishment in his work. On July 12, 1911, he was appointed to the factory and building inspection department of the Massachusetts District Police and transferred to the Board of Labor and Industries on October 16, 1913, and continued until his death with the Department of Labor and Industries. His industrial experience included work in the building trades, and in textile manufacturing as an engineer and electrician, in charge of electric lighting, ventilating and elevator plants covering a period of seventeen years. His long association with the department endeared him to his associates and his departure imposed a loss on the work of the division.

APPOINTMENT OF CHIEF INSPECTOR

Inspector John J. McDonough was appointed to the position of chief inspector on July 22, 1935. He comes to this work with wide experience acquired not only in the activities of the division, but as State N.R.A. Compliance Director which position he held for a period of a year and a half.

REPORT OF THE BOARD OF CONCILIATION AND ARBITRATION

EDWARD FISHER, *Chairman*; RAYMOND V. McNAMARA, JOHN L. CAMPOS

On December 1, 1934, one joint application for arbitration was pending. During the year 88 joint applications were filed, making a total of 89. Of these, 19 were abandoned, withdrawn or settled; decisions were rendered in 68 cases, also one supplemental decision; two cases are now pending. One petition for a certificate of normality was filed, a continued hearing on which is pending awaiting notice from the parties.

CONCILIATION

The activities of the Board have necessitated trips to various sections of the state in contacting many and varied lines of industry involved in labor strife. As in the recent past, industrial conflicts in the textile industry have assumed the more numerous and serious proportions; such controversies in some instances involving not only a large number of employees but also, unless soon adjusted, the probable temporary and even permanent closing of a mill; thus presenting, in the event of a permanent closing, a situation tragic to the community. The results of the efforts of the Board have been gratifying, and while immediate success in securing an adjustment of the controversies has not always followed, yet in such instances the foundation was laid whereby the parties themselves, or through the advice and assistance of the local authorities, reached an agreement. An outstanding example of the latter being the strike of the operatives in the Webster Mills of the American Woolen Company at Webster, later outlined in this report.

The Board has continued with its policy of emphasizing, in its contacts with representatives of employers and of employees, the desirability of having an opportunity to confer with the parties to a labor controversy before any cessation of work takes place, with the result that in many instances of actual or threatened industrial strife conferences have been so arranged and a serious controversy, with the accompanying loss to the employer and the employees as well, has been averted. In some instances the information has been forthcoming from the employer, in others from the employees, and in still others has been secured by the Board itself. The present year has afforded examples of the success of this policy, one of which was the case of the Hub Hosiery Company of Lowell, employing between four and five hundred operatives, where, as a result of information brought to the attention of the Board by a representative of the employees, a conference was arranged with representatives of the company and of the union employees, the issue was discussed, suggestions were made by the Board and conferences of the parties followed, whereby a settlement was reached without any cessation of work and harmonious relations were resumed.

TANNING INDUSTRY

For the last two years the Board has been concerned with the operation of the agreement entered into between the manufacturers in the tanning industry,

especially in Peabody and vicinity, and their employees, members of the National Leather Workers' Association; this agreement having resulted from the serious strike in 1933, and being renewed in 1934 through the good offices of the Board, under the terms of which the Board was designated as an agency of arbitration and also for enforcing other important provisions relative to employment. While differences have arisen taxing the patience and somewhat exhausting the resources of both employer and employees, in a marked degree caused by lack of employment, yet as a whole the agreement has worked successfully although accompanied with some labor controversies, the most serious of which occurred in the tannery of Beggs & Cobb, Inc., at Winchester, involving a strike of between three and four hundred employees on Monday, July 29. Grievances pending for some time had been discussed with representatives of the company but the employees contended that no relief was forthcoming, and while the terms of the agreement between the company and union employees provided a means of adjustment without cessation of work, nevertheless the strike followed. The Board upon learning of the strike immediately conferred with the officials of the company and of the union, resulting in a conference being held on Thursday, August 1, at which the grievances were presented and discussed; an adjustment of two grievances was promised. The matter of having the employees care for the hides in process of tanning so as to prevent loss was discussed at this time, and also later, but the representatives of the employees declined to consider the same. By reason of the fact that two of the officials were away, the conference was adjourned until Monday, August 5, awaiting their return. The hides in process of tanning were, however, cared for by the company, and while some violence ensued during this controversy no damage was done to the factory. The conference was resumed on Monday, after arrangements had been made for a group of the striking employees to work on the hides while the conference was in session. This conference was held in the Town Hall, Winchester, lasting all day with an intermission late in the afternoon, and being again resumed in the evening. The numerous grievances were gone over in detail; while some difficult problems were presented and some tense moments spent in discussion, finally some of the differences were agreed to and suggestions and recommendations as to others were made by the Board, which the officials of the company agreed to accept and the conference adjourned, the committee of the employees to attend a meeting of the members. At this meeting the results of the conference were presented and accepted; the controversy was settled and employment resumed.

SHOE INDUSTRY

The demoralized condition of this very important industry has seriously concerned the Board, and the Department as well, and while an investigation was made during the year by the Federal authorities upon the urgent request of some of the employers and union employees, and also by a committee appointed by the Governor, no remedial suggestion or recommendation was forthcoming or resulted therefrom.

It is apparent that at least four primary and fundamental bases of relationship between employer and employees must be adopted and prevail if the commonwealth is to retain its prestige in this industry and the employees enjoy employment, especially in the highly organized shoe-manufacturing centers.

First. The employer and employees—with special reference to the latter—must appreciate and recognize that “co-operation and not conflict” must be the basis of their industrial relationship.

Second. That where contractual relationship exists through agreements between employer and employees, such agreements must in turn be based upon a full, fair and just recognition of the respective rights and obligations of each. The employees to be protected in having reasonable hours of labor, fair wage rates and just working conditions; the employer in turn to have the right and privilege of conducting his business free from undue restrictions or interference. The line of demarcation can reasonably and justly be established if and when the employees, and the employer as well, have the willingness and desire to do so and recognize their respective rights and obligations and abide thereby.

Third. A fair and reasonable basis should be established for giving considera-

tion to and adjusting such differences as arise, submitting to such agency of arbitration as they may agree upon those which they are unable to settle.

Fourth. The atmosphere and conduct of "Rule or ruin," which altogether too prominently prevails in this industry, even where written agreements exist, must give way to a determination on the part of both—and here again with special reference to the employees—to abide by the letter and spirit of their agreement; and where no such agreement exists, to maintain an attitude controlled by reason and fair play and thereby avoid the destructive consequences resulting from strikes, lockouts and the comparatively recent and contemptible "holiday," or remaining at the bench unemployed.

The commonwealth through its law and agencies affords ample opportunity for establishing and continuing the relationship of employer and employee upon this basis; the results of failure to utilize which are altogether too apparent. In one center at least the employer and employees are apparently awakening to the necessity of adopting the above principles.

TEXTILE INDUSTRY

The labor controversies in the textile industry resulting in cessation of work assumed serious proportions, as hereinbefore referred to, in many communities, among which were Fall River, Lowell, Salem, Uxbridge and Webster. All of these controversies, however, were settled before the close of the year. The serious strike in Salem and Peabody of employees of the Naumkeag Steam Cotton Company was finally adjusted through the good offices of the agent of the Board, Fred M. Knight, after an investigation of comparative and competitive conditions in this industry, involving both wage rates and working conditions.

Webster Mill, Webster. The strike in the Webster Mills had its inception on Tuesday afternoon, August 13, at which time the carders quit work, followed on Wednesday by some employees in other departments, resulting in the mill's practically closing on that date. The mill, at that time operating on two shifts, employed about one thousand operatives, a substantial number of whom were members of the United Textile Workers of America. At the time this controversy arose Mr. Lane, the superintendent, was in New York on business in connection with the mill. The Board visited Webster on Monday afternoon, August 19, and met with a citizens' committee, including two members of the board of selectmen and the president and two other members of Local No. 2270 of the United Textile Workers of America. After a discussion of the issues and upon the urgent recommendation of the Board, arrangements were made whereby the Board met in the evening the committee of employees, twenty in number, and Mr. Carlin, an organizer of the union. The list of grievances was gone over and the complaints discussed; the conference adjourned until the following afternoon, when the Board expected that officials of the company would be in attendance. On Tuesday afternoon the Board first met Andrew B. Walls, Jr., of New York, in charge of the district in which this mill is located, and Mr. Lane, the superintendent of the mill. Through some misunderstanding neither Mr. Walls nor Mr. Lane expected the joint conference to be held at this time, and Mr. Walls had other engagements in the afternoon. Nevertheless they consented to attend. At this conference the employees were represented by the same committee; soon after the conference opened Horace A. Riviere, fourth vice-president of the national organization, entered. The company was represented by Mr. Walls and Mr. Lane. Carl E. L. Gill, mediator for the Textile Labor Relations Board, soon after the opening joined the conference. After a general discussion the specific grievances were taken up, one at a time. As considerations of these items had not been concluded when Mr. Walls had to leave, the discussion was resumed and continued into the evening; the conference was then adjourned until the following day. On Wednesday at eleven o'clock in the morning the conference was resumed, the Board having previously conferred with Mr. Walls and been informed that he would have to leave early. At this conference while a tentative understanding was reached upon many matters in dispute, as to others Mr. Walls, after explaining the general conditions and the attitude of the officials of the American Woolen Company, stated definitely that these demands and requests could not be granted. The conference continued after Mr. Walls's departure and late in the afternoon the Board in

conjunction with Mr. Gill drew up an outline of the results of the conference. On discussing this outline with the committee of employees and Mr. Lane, it appeared that while most of the matters were agreed upon by the parties there were still a few in dispute. As a result, it was understood that the Board and Mr. Gill should prepare a final draft of these issues and the chairman would be prepared to go to Webster the next evening and present it to the committee of employees, and it was to be taken up with the representative of the company also.

The following day the chairman endeavored to arrange a meeting with Mr. Walls, who was in Boston, but was unable to do so; but he was informed by Mr. Lane that certain of the issues the company would not agree to. As a result the chairman visited Webster in the evening and met with a committee of the employees and presented to them a draft of the outline as made by the Board and Mr. Gill, also a draft eliminating those items not acceptable to the company. The latter, however, was not acceptable to the committee of the employees. As a result, a conference was held at the office of the Board at the State House with Mr. Gill on Monday, and recommendations, twenty-four in number, offering a reasonable basis of adjusting this controversy, were prepared and sent to the representatives of the employees and to Mr. Walls, representing the company. Later in the week the chairman received a telephone communication from Mr. Walls, stating that these recommendations were not acceptable. The meeting of the employees was not held until the following week, at which time the Board was informed that the recommendations had been accepted although, as far as the Board had any information, they were unaware of the action of the company thereon.

After receiving the notification from the employees of acceptance of the recommendations, the Board through its chairman endeavored, both by telephone and letter, to arrange a conference with Mr. Walls but without success. In the meantime members of the board of selectmen of Webster conferred with the Board in regard to the matter, and later with the officials of the company and representatives of the employees, both union and non-union. As a result of their efforts, to the credit of the board and especially the activities of its chairman, an adjustment was later reached and the mill resumed operation, after being closed for several weeks.

PUBLISHING INDUSTRY

Springfield Newspapers, Springfield. — On May 15 a labor controversy arose, resulting in the cessation of work of 187 members of Local No. 216 of the International Typographical Union, employed by the Republican Publishing Company and Springfield Union Publishing Company; the controversy arising by reason of the discharge by Sherman H. Bowles, representing the publishers, of Kenneth I. Taylor, president of the local. The Board, on ascertaining that the parties were unable to adjust their differences, visited Springfield on May 21, conferring first with a committee of the employees and later with Mr. Bowles, and the issues were outlined and discussed. In the evening a joint conference was held with this committee and Frank E. Phillips representing Mr. Bowles, who although requested failed to be present. It appeared that Mr. Taylor's discharge followed his refusal to accept a position involving supervision and authority over his fellow employees, and upon Mr. Bowles' declining to reinstate him the cessation of work ensued, and picketing followed. The employees contending that they were all discharged or locked-out, and the publishers that these employees precipitated a strike. It further appeared that Mr. Phillips, representing Mr. Bowles, in conference with representatives of the employees the following day offered to accept back all the employees except Mr. Taylor and arbitrate the issue of his discharge. This did not prove acceptable to the employees and the controversy continued. The employees, however, contended that the issue offered to be arbitrated was not merely the question of Mr. Taylor's discharge but also involved the determination of other rights under their employment.

The Board, after conferring with the parties late into the night, prepared the following recommendations and, after discussing the same with representatives of the parties, submitted them for acceptance:

The Board of Conciliation and Arbitration, in order to adjust the labor controversy existing between the Springfield Newspapers and its employees, mem-

bers of Local No. 216, Typographical Union, after conferring with the representatives of the parties involved, and following a joint conference with such representatives this evening, submits the following as a basis of adjusting this controversy without creating any precedent for the future.

That the employees as business warrants return to their respective occupations as employed previous to the cessation of work and that any differences which may immediately arise which the parties are unable to adjust by reason of such re-employment be submitted to the arbitration board which recently made its award relative to wage rates, hours and duration of the award; the decision of this board to be final and binding.

These were accepted by the employees on the following day. On May 23 the Board was in receipt of the following telegram from Mr. Phillips, seeking on behalf of Mr. Bowles an interpretation of the recommendations:

"Referring to Springfield typographical union strike, the Newspapers request me to advise you that they greatly appreciate your efforts at conciliation and think your recommendation a most helpful step. However, it seems to the Newspapers rather indefinite and subject to various interpretations which might lead to misunderstandings. They wish clarification of some matters before making a final answer. Is it understood by the typographical union that any discharged employee remains in that status until reinstated by the Newspaper management or by arbitration? That is the Newspapers' understanding of the wording of your recommendation. If less men are to be taken back than struck because of lessened business due to union threats to boycott merchants who advertise, how are these men to be selected? Are they to be selected by your Board, by the Newspaper management, by priority, or by the typographical union? It is the Newspapers' understanding of your recommendation that their management is to select from the union membership the men who are to return to work and that union priority cannot be followed because of the lesser number of men returning to work and the fact that all men are not competent to move from one composing-room department to another.

What would your Board recommend or arrange in regard to reimbursement of the employees injured by the strikers, for medical care and damage to the person and for damage to the property of the Newspapers caused by the strikers? The management believes that your Board can use its conciliatory offices in this matter as strikes do not end peacefully with court actions pending.

In keeping with my understanding of the course your Board follows, that announcements of recommendations and decisions affecting acceptance thereof be issued by your Board, I am advising newspaper reporters that any statement to be made should be sought from you."

As a result the Board again visited Springfield on the following day, holding a joint conference with Mr. Phillips and the committee of the employees, at which time after some discussion the Board issued the following interpretation in answer to the telegram:

The recommendation of the Board, after an extended discussion with the representatives of the parties, was based upon the fact that all the employees should be returned to work, regardless of whether they were, as alleged, discharged or for any reason quit work. The Board and the representatives of the parties, including the representatives of the typographical union, so understood the recommendations at the time they were made.

As to priority, the recommendation of the Board, in accordance with its established policy, was based upon the custom or policy which had heretofore prevailed; as, for instance, in the case of employees being temporarily laid off by reason of the depression in business or other cause which occasioned a reduction in the force, and later being re-employed. The Board understands that priority has heretofore been recognized and has prevailed.

In regard to the inquiry relative to damages and injuries arising during this labor controversy, never in the experience of the Board, including the present, has any such issue been raised in conference between the parties or been

presented to the Board before making its recommendation, and therefore is not given consideration in this instance.

Thus far, however, so far as the Board has any information, the recommendations have not been accepted by the publishers.

While the publishing of these newspapers was noticeably hampered for a time, yet later the publication gradually resumed, or nearly resumed, the former proportions. In the meantime legal proceedings were instigated by the publishers by way of injunction. Disturbances accompanied with violence also followed. The Board, however, continued with its endeavors through conciliation to settle this conflict, holding conferences and corresponding with the parties, but without success; Mr. Bowles failing to respond to the urgent and repeated request of the Board to enter a joint conference with the committee of the employees, although assured that by so doing the probability of reaching a settlement was apparent.

On September 20 the Board arranged a conference with the committee of the employees, which was attended by Mr. Phillips and Arthur T. Garvey, Esq., representing Mr. Bowles. There were also present, by request of the Board, John W. Haigis, Professor S. Ralph Harlow and George F. Harding, the three members of the board which last spring arbitrated differences as to wage rates, etc., between these publishers and employees; the Board thus making a final effort, trusting with their responsive advice and assistance to be able to find some reasonably acceptable solution of this long-drawn-out strife. After a lengthy discussion and adjournment, the conference was again resumed at Springfield on the 24th; a member of this arbitration board in the meantime having conferred with Mr. Bowles. While every effort was made, no immediate results looking towards a settlement followed. It was arranged, however, that representatives of the contending parties would continue in an endeavor to reach a settlement.

Later, as apparently no progress to an adjustment was being made, the Board having exhausted its efforts through conciliation and the parties not agreeing to arbitrate their differences, a public hearing was held at Springfield on October 24 as a part of the investigation by the Board under the statute to "ascertain which of the parties thereto was mainly responsible or blameworthy for the existence or continuance" of this labor controversy. In a final effort to find a solution of this unfortunate controversy, the Board at the close of the hearing arranged for a conference, to be held at its office in the State House, Boston, on Monday, October 28, between Sherman H. Bowles, representing the publishers, and a committee of the employees.

At this conference it was frankly stated by members of the committee that their membership were desirous of returning to work provided the controversy could be ended by a satisfactory settlement. It also appeared to be the wish and desire on the part of Mr. Bowles that the controversy end and an opportunity be afforded for the re-employment of these employees, such re-employment depending to some extent upon business conditions; it being pointed out that if an adjustment was made in the near future while business conditions were at their height, more could be given an opportunity for employment than at a later period. The issue of how the employees should apply for re-employment, in the event the controversy was ended, was discussed and finally it was agreed that the representative of these employees could submit a list of those available for re-employment instead of requiring the employees to apply individually. It was also understood that Mr. Bowles, representing the publishers, would confer with representatives of the employees relative to such re-employment, and further, the Board suggested, in the event that such adjustment was reached, that Fred M. Knight, its agent, would be available for service in connection with this re-employment, to take up with Mr. Bowles or a committee of employees any differences or issues which might arise. The Board then stated it was prepared to make a recommendation that the controversy be ended upon this basis, if reasonably acceptable to the parties. Mr. Bowles expressed his acceptance but the committee of the employees, after conferring apart, stated they were not prepared at that time to give their approval but desired time to give further consideration thereto. The conference adjourned with this understanding. Pending further action by the committee, Mr. Knight conferred with the committee and also with Mr. Bowles. Later he attended a meeting of the employees in Springfield on November 13 and urged acceptance of

the recommendation. The meeting voted to accept the same, thereby ending the controversy. The labor controversy being ended, no report was made by the Board placing the responsibility therefor.

Previous to the Board's making its recommendation, however, it had the assurance of Mr. Bowles and Mr. Phillips, his personal representative at the various conferences, that it could expect the whole-hearted co-operation of Mr. Bowles in the reinstatement of his former employees, and as a result of these promises both Mr. Knight and the Board were led to believe — with ample justification for such belief — that if the controversy was ended a large number of these employees would be re-employed over a reasonable period, commencing at once; otherwise the recommendation would never have been made. The Board regrets to state that Mr. Bowles has failed to carry out what was reasonably and justly expected by the Board and which formed the basis of the Board's making the recommendation for ending this controversy and, further, has showed a decided lack of the co-operation with Mr. Knight which he had assured him would be forthcoming. At the time this unfortunate controversy arose there were 187 employees who ceased work. Since that time very few have obtained employment elsewhere and the remaining were receiving benefits from the international union, which benefits ceased on the calling off of the controversy. Since calling off the controversy some fifty of the former employees have been re-employed as substitutes only, working from one to three days a week. In face of this situation Mr. Knight suggested to Mr. Bowles that an arrangement be made for the work to be divided among the present and former employees, to which suggestion Mr. Bowles declined to accede.

While the Board fully recognizes the right and privilege of the publishers to maintain and continue the publication of their papers in the face of this labor controversy, which it recognizes has been done in this instance, yet as most of those whom the publishers employed during the controversy came from without the commonwealth and, in fact, from various sections of the United States, both south and west, it was the belief as well as the expectation of the Board that many so employed in the ordinary course of events would be replaced by these former employees, residents of Springfield and vicinity; this being the experience of the Board in adjusting labor controversies of this nature. Such unfortunately has not been the case, Mr. Knight being informed recently by Mr. Bowles that not exceeding twenty of these employees would be permanently re-employed.

In the face of these circumstances the Board, having exhausted its efforts in endeavoring to bring this long-drawn-out controversy to a reasonable and equitable conclusion and having assumed the responsibility of making the recommendation for ending the same (which was accepted by Mr. Bowles and later by the employees), while in no way attempting to avoid or evade responsibility for such recommendation and its acceptance, was constrained to view the attitude and action of Mr. Bowles, representing the publishers, as being in no substantial way responsive to the reasonable expectations of the Board or to the confidence reposed in him both by the Board and Mr. Knight.

In view of the above facts and in the light of what has actually happened, the Board is of the opinion that the publishers should have accepted the recommendations of Mr. Knight and at least shared the work with the former employees, and is further of the opinion that the re-employment of approximately fifty men for substitute work of from one to three days and the permanent re-employment of but four men out of 187 formerly employed, is not the co-operation promised by Mr. Bowles at the time the Board's recommendation was made.

ARBITRATION

The work of the Board in this branch of its activities has been of a varied nature so far as the lines of industry involved are concerned, occupying a considerable portion of the Board's time, especially with respect to its duties under the agreement between employers and employees in the tanning industry, hereinbefore referred to. In several instances, as a result of the Board's activities in its capacity as conciliator, settlements have been reached with the Board chosen to arbitrate those differences which the parties were unable to adjust. In other instances the Board has been chosen as the arbitration agency for settling the existing differences where the labor controversy was adjusted by the parties themselves, or with

the assistance of the local authorities; a notable example of this latter being the settlement reached of the serious controversy, with cessation of work and accompanying violence, between the teamsters and truck drivers and their employers in the coal business in Lynn, Salem and vicinity, under the terms of which employment was resumed and the provisions of the new working agreement between the contending parties were determined by the Board.

The Board in its work through arbitration has found the parties to the submission not only co-operative with but appreciative of the responsibility assumed by the Board, and further, they have received its award in that spirit. Thus demonstrating the value of this means of adjusting differences arising between employer and employee without cessation of work or, where a cessation occurs, with immediate resumption of employment pending arbitration of the issues involved; the sound policy of the Board being not to arbitrate such differences unless and until employment is resumed.

LIST OF INDUSTRIES AFFECTED AND PRINCIPAL DIFFERENCES IN CONCILIATION AND ARBITRATION CASES

CONCILIATION

Industries Affected: Baking, Building, Cigar, Coal Distributing, Garage, Hand Bags, Hat, Hosiery, Liquor Distributing, Macaroni, Publishing, Radio, Shoe, Tanning, Textile, Toy, Transportation.

Principal Differences: Wages, Working Conditions, Discharge, Discrimination, Union Recognition, Union Shop.

ARBITRATION

<i>Industries Affected</i>	<i>Issues Arbitrated</i>
Box Manufacturing (truck drivers)	Wages
Coal Distributing (truck drivers, teamsters)	Wages, Terms of Agreement
Cigar	Wages
Liquor Distributing (truck drivers)	Wages, Terms of Agreement
Macaroni	Wages, Discharge
Patent Leather	Wages
Shoe	Wages, Discharge
Tanning	Wages, Discharge, Discrimination

REPORT OF THE MINIMUM WAGE COMMISSION

EDWARD FISHER, *Chairman*; JOHN L. CAMPOS; RAYMOND V. McNAMARA;
MARY E. MEEHAN, *Acting Director*

INTRODUCTION

With the enactment of what is commonly termed the Uniform Minimum Wage Law, effective September 12, 1934, a brief outline of which was given in the report of the previous year, the Commission during the present year has been occupied not only with making inspections and securing compliance with the existing decrees, which do not come under the provisions of this new law, but continue to be in effect and enforceable under the provisions for the former law, but also have been faced with the problem of bringing the present decrees under the provisions of the new law in order to accomplish which it was deemed necessary to seek legislative authority.

The legislature was advised by the Attorney-General that a serious constitutional question would be involved if legislation was enacted placing these decrees directly under the provisions of the new law. As a result chapter 267 of the acts of 1935 was passed, becoming effective the middle of August. Under the provisions of this chapter the Commissioner was authorized to direct the Commission to appoint a wage board in any occupation covered by any of the existing decrees without the necessity of an investigation or determination "that any substantial number of women or minors in any occupation are receiving oppressive and unreasonable wages. . . ."

Thus the opportunity is afforded through the establishment of wage boards of bringing all occupations now under existing decrees within the provisions of the new law. However, it must be borne in mind that this necessitates establishing a wage board as required under the provisions of the new law in each of these occupations. This necessarily will take considerable time and effort to accomplish, as it will necessitate the formation of a wage board in each of the twenty-one occupations covered by the present decrees.

As chapter 267 did not become effective until the middle of August, and while no definite steps could be taken towards actually establishing wage boards until after this date, yet the Commission prepared in advance for establishing the same by determining what occupations were first to be covered and making available the necessary information and material therefor. As a result, wage boards were authorized first in four occupations and later in others, the first four occupations being under the following decrees: Retail store, electrical equipment and supplies, muslin underwear, and boot and shoe cut stock and findings.

OUTLINE OF ACTIVITIES

The present year has been not only an active but also a trying one, accompanied with the confusion naturally arising on the part of the employers and employees in the various occupations covered by the existing decrees and also the public as well. This by reason of the enactment of the new Uniform Minimum Wage Law which did not, as outlined in the report of last year, bring the existing decrees within its scope, which fact was not in all instances fully appreciated either by the employers or employees, thus placing the burden on the Commission of being continuously called upon for explanation. Also some confusion has arisen necessitating further activities on the part of the Commission by reason of the decision of the United States Supreme Court invalidating the N.I.R.A. and the accompanying codes. Accompanying these activities of the board there has also been the regular inspection work and continued co-operation with the code and other federal agencies in making investigation and securing information concerning the wage rates, hours, and other conditions of employment.

At the close of the year the records of the Commission again showed a somewhat large number of non-compliance cases although not as great as at the close of the previous year. Nevertheless, again this situation as pointed out in the report of the previous year should not be viewed in too serious a light as the wages paid in most instances represent compliance with the wage rates of the codes which, generally speaking, were in many instances less than those established under the

decrees and again special reference is made to the retail store decree where the greater number of non-compliances exist by reason of the code.

NEW WAGE BOARDS

The laundry and dry cleaning wage board which was in process of being formed at the close of the previous year was later established and held its first meeting on April 5th, holding in all nine meetings and submitting a unanimous report on June 6th based upon an hourly rate accompanied with a cost of living budget of \$14.45 as follows:

Board and lodging	\$8.50
Clothing	1.75
Laundry . . . . .	.35
Doctor, dentist and oculist . . . . .	.50
Carfares	1.20
Church . . . . .	.25
Self-improvement . . . . .	.25
Vacation . . . . .	.50
Recreation . . . . .	.35
Reserve for emergency . . . . .	.40
Mutual association dues and insurance . . . . .	.25
Incidentals . . . . .	.15
Total	\$14.45

This report was accepted by the Commission and a public hearing held thereon after which it was approved and submitted to the Commissioner who issued a directory order thereon which became effective October 1st, a copy of which is appended to this report.

Special credit is due the members of this wage board and the untiring efforts of its chairman, as this was the first board to function under the provisions of the new Uniform Minimum Wage Law, and, therefore, carried with it the importance of establishing a general basis for this and future directory orders.

New wage boards were also authorized in the retail store, electrical equipment and supplies, muslin underwear and the boot and shoe cut stock and findings occupations and two more formed. The retail store wage board held its first meeting November 1st and the electrical equipment and supplies on November 20th. The other two wage boards were in process of formation at the close of the year. Also other wage boards have been authorized which will be formed as rapidly as possible, as the previous wage boards report their determinations, it being, as above referred to, the determination of the Commission to have wage boards continuously in session until all the occupations under the existing decrees are placed under the provisions of the new law.

ADVERTISEMENT OF NON-COMPLIANCES

By reason of the fact that during the greater part of the year the codes were in effect and that it was the determination of the Commission to bring the existing decrees under the provisions of the new law, it was not found advisable to resort to publication.

INSPECTIONS

Inspection has been initiated and completed under the following decrees: Bread and Bakery Products; Brush; Boot and Shoe Cut Stock and Findings; Candy; Canning and Preserving and Minor Lines of Confectionery; Corset; Druggists' Preparations, Proprietary Medicines and Chemical Compounds; Men's Clothing and Raincoat; Millinery; Office and Other Building Cleaners; Paper Box; Pocket-book and Leather Goods; Retail Store; Stationery Goods and Envelopes; and Women's Clothing. Inspections under the following decrees are still in process at the close of the year: Jewelry and Related Lines; Knit Goods; Laundry and Dry Cleaners; and Toys, Games and Sporting Goods.

In addition there have been inspections and re-inspections made under a majority of these decrees for the purpose among others of checking up to see if the employers had fulfilled their obligations to meet compliance as promised and some as a result

of complaints, and also a check-up preliminary to establishing new wage boards. In the report of 1933, reference was also made in some detail to the homework carried on in some of the occupations covered by decrees and also the action of the Commission relative thereto. As a result of the inspection work, during the year homework has been found in 17 firms under six decrees covering 262 records of employees, thus indicating the amount of work thus performed. In the regular inspection work wage records for tabulation were secured for 48,393 women and girls in 3,672 firms. In addition, 9,750 reinspections were taken in 15 decrees including 393 establishments, this with the inspection of the homework just referred to, making a total of 58,405 cases in 4,082 firms.

REINSPECTION OF INSPECTION CASES

Disposition of Non-compliances Pending from Previous Years

(See Table 1)

At the beginning of the fiscal year there were outstanding, as appears from the report of the previous year, 8,728 cases of non-compliances in 557 establishments. A large number of these cases come under the Retail Store decree with 3,347 cases in 205 establishments, and Electrical Equipment and Supplies decree with 1,099 cases in 32 establishments.

There were also 820 cases in 57 Jewelry and Related Lines firms; 1,030 cases in 60 Muslin Underwear establishments; 575 cases in 76 Boot and Shoe Cut Stock and Findings establishments; 765 cases in 35 Men's Furnishings establishments; and 359 cases in 19 Toys, Games and Sporting Goods factories. The remaining cases were divided among the following decrees: Bread and Bakery Products; Candy; Canning and Preserving and Minor Lines of Confectionery; Druggists' Preparations, Proprietary Medicines and Chemical Compounds; Knit Goods; Men's Clothing and Raincoat; Office and Other Building Cleaners; Paper Box; Pocket-book and Leather Goods; Stationery Goods and Envelopes; and Women's Clothing.

Adjustments. — As a large number of these cases were in establishments where difficulties in securing adjustment had prevailed in the past, a difficult problem was presented in securing compliance. However, the Commission has been reasonably successful in securing adjustments, and in many cases where compliance was not secured, substantial increases in wage rates were made. Wages were raised to meet the provisions of the decrees in 409 cases in 108 establishments. Adjustments by change of work, hours or method of payment, whereby the employees were enabled to earn the minimum, were made in 215 cases in 40 establishments. There were 21 employees in nine establishments covered by the piece rate ruling and in 2,602 cases in 282 establishments it was reported that the employees had left, been laid off or discharged. Five establishments with 81 cases were reported as out of business, and 65 cases in seven establishments were incorrectly recorded, while 10 cases in three establishments were not under the decree. Adjustment was promised or reported in 84 cases in 11 establishments. One establishment employing two women moved from the state; one case in one establishment was recorded as special license type; and 19 cases of technical non-compliance were found in one establishment.

Cases pending. — There were outstanding at the close of the year, 5,219 cases in 421 establishments, mainly under the Retail Store, Electrical Equipment and Supplies, Muslin Underwear, Men's Furnishings, and Jewelry and Related Lines decrees.

Disposition of New Cases Found in Firms with Cases Outstanding from Previous Years

(See Table 2)

In the course of reinspection of firms with cases outstanding from previous years, 1,970 new cases were found in 222 establishments. The majority of these cases came under the Boot and Shoe Cut Stock and Findings; Muslin Underwear; Retail Store; and Toys, Games and Sporting Goods decrees. The remaining cases were under the Bread and Bakery Products; Candy; Druggists' Preparations, Proprietary Medicines and Chemical Compounds; Jewelry and Related Lines; Knit Goods; Men's Clothing and Raincoat; Men's Furnishings; Paper Box; and Stationery Goods and Envelopes decrees.

Adjustments. — As many of these cases were in establishments where compliance had never been secured, the Commission faced difficulties in endeavoring to secure adjustments. In six cases in one establishment wages were raised to meet the provisions of the decrees, while 23 employees in three establishments were covered by piece rate ruling. One employee in one firm was reported as left, laid off or discharged; and two employees in one establishment came under the special license provision.

Cases Pending. — There were pending at the close of the year 1,938 cases in 222 establishments, mainly under the Boot and Shoe Cut Stock and Findings; Muslin Underwear; Retail Store; and Toys, Games and Sporting Goods decrees. Other cases were found under the Bread and Bakery Products; Candy; Druggists' Preparations, Proprietary Medicines and Chemical Compounds; Jewelry and Related Lines; Knit Goods; Men's Clothing and Raincoat; Men's Furnishings; Paper Box; and Stationery Goods and Envelopes decrees.

Disposition of Cases in the Regular Inspection Work

(See Table 3)

In the regular inspection work, 3,370 cases of non-compliance were found in 458 establishments. This represents a decided improvement over that of the past year as to numbers of cases, and it is to be further noted that in most instances it represents compliance with the code rates.

Adjustments. — In the cases settled, wages were raised for 60 women in 18 establishments. Adjustments by change of work, hours or method of payment whereby the employees were enabled to earn the minimum were made in 45 cases in nine establishments. Adjustment was promised or reported in 613 additional cases in 141 establishments. There were 57 employees in 11 establishments who came under the piece rate ruling. This ruling provides that in cases of experienced operators where the great majority are earning the minimum or over, the rates are considered to be in accordance with the decree. In nine establishments, 27 employees were covered by the special license provision; in 70 cases in 22 establishments it was reported that the employees had left, were laid off or were discharged. Three establishments employing 10 women were reported as out of business. There were also four cases in one establishment that did not come under the decree; 18 cases in two establishments were incorrectly recorded; and four cases in three establishments were considered as technical non-compliance.

Cases Pending. — At the close of the year there were pending in the regular inspection work 2,462 cases in 317 establishments.

CONCLUSION

The confusion arising as hereinbefore referred to by reason of the enactment of the new Uniform Minimum Wage Law with its mandatory provision, and the fact that the existing decrees continue to remain enforceable under the provisions of the former law by which they were established, has not been without some compensating results, at least as respects the employers. As it has forcibly brought to the front the co-operation and support of numerous employers who, through contact with the Commission and the experience had under the decrees, have come not only to appreciate but support this legislation, many of whom, however, were of the opinion that the mandatory provision of the new law was also applicable to the existing decrees, and who, on being informed that such was not the case, are as insistent as the Commission to have the occupations under the existing decrees brought within the scope of the new law.

This attitude has been further very forcibly evidenced by those employers coming under the Laundry and Dry Cleaning occupation, who desire to maintain, at least, the standards established under the recent Directory Order No. 1 in this occupation where, with special reference to the Dry Cleaning branch, conditions accompanied with low wage rates exist, resulting in most unfair and destructive competition.

This spirit of co-operation evidenced by the employers in this as well as in the occupations under the decrees which the Commission is in process of bringing under the provisions of the new law, is not only gratifying, but also very reassuring, and augurs well for the future operation of the law sustaining as it does the

confidence which the Commission has always had that such approval and support would ultimately follow when the real advantages and accomplishments of the law were experienced.

The enactment of the law in other industrial states in the east has also materially strengthened and stimulated this support.

The present law makes no provision for compensation to wage board members, thus placing upon them not only a responsibility but calling for gratuitous service as well. The spirit in which the wage board members have accepted and responded to this service is highly commendable and the Commission not only appreciates, but also at this time takes the opportunity to publicly recognize and acknowledge it.

During the coming year Directory Order No. 1 in the Laundry and Dry Cleaning occupation will have been in force for the period required under the law to expire before such order can be made mandatory if failure to comply with its provisions necessitates that such action be taken and thus the effect of the mandatory provision will be given a trial and may result in its legality being later tested in the Courts.

LAUNDRY AND DRY CLEANING WAGE BOARD

List of Members

Representative of the Public

LaRue Brown, Esquire, *Chairman*, 185 Devonshire Street, Boston, Massachusetts

Representatives of Employers:

Mr. Lawrence P. Bliss
Bayburn Cleaners
1 Broadway
Arlington, Mass.

Mr. Arthur T. Downer*
Winchester Laundries
Converse Place
Winchester, Mass.

Mr. Forrest I. Neal
Old Colony Laundry
100 Quincy Ave.
Quincy, Mass.

Representatives of Employees:

Mrs. Irene Lichty
Forest Hills Laundry
19 Lanesville Terrace
Roslindale, Mass.

Miss Margaret Monroe
Beacon Laundry
14 Lenox St.
Boston, Mass.

Mr. Harold Wright
B. & S. Laundry
55 Carleton St.
Cambridge, Mass.

THE COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF LABOR AND INDUSTRIES

LAUNDRY AND DRY CLEANING OCCUPATION

Directory Order Number 1

Minimum Fair Wage Standards for Women and Minors Employed in This Occupation

BASIC WAGE RATES:

1. No woman and no minor employed in the laundry and dry cleaning occupation (except an apprentice or learner) shall be paid less than the following rates:
 - a. Week of 35 hours or over, 30 cents per hour.
 - b. Week of less than 35 hours, 33 cents per hour, providing, however, that the amount paid need not exceed the total for 35 hours at the basic minimum rate.
 - c. Learners or apprentices, for a period not exceeding four weeks, 27½ cents per hour.

SPECIAL PROVISIONS:

1. Piece rates: The wages paid piece workers shall be so adjusted that every woman or minor so employed shall earn for any given period of employment not less than the time wages herein prescribed for such period.
2. Waiting time: The time during which employees are required to wait

* Served on the first and second board.

on the employer's premises and no work is provided by the employer, shall be counted as working time and paid for at the individual worker's regular wage rate.

ADMINISTRATIVE REGULATIONS

DEFINITIONS:

1. Laundry
 - a. Any activity concerned with the washing, ironing, or processing incidental thereto of any kind of fabric or laundry wares.
 - b. The collection, distribution or sale of laundry service.
 - c. The producing or rendering of such activity or service by the employer upon his own behalf or for others.
2. Dry Cleaning
 - a. Any activity directly concerned with the cleaning, refreshing or restoration of any fabric or article of wearing apparel including pressing or other work incidental thereto or performed in connection therewith.
 - b. The collection, distribution or sale of dry cleaning service.
 - c. The producing or rendering of such activity or service by the employer upon his own behalf or for others.
3. Minors: Employees of either sex under twenty-one years of age.
4. Employees: Women and minors employed in laundry and dry cleaning occupation.

REGULATIONS:

1. Deductions
 - a. Meals or lodging: No deduction shall be made for meals or lodging or both furnished to any employee by the employer until the employer's application for such deduction has been reviewed by the Commissioner of Labor and Industries and a special permit issued and posted accordingly.
 - b. Handicapped: No woman or minor whose earning capacity is impaired by age, injury, or physical or mental deficiency shall be paid less than the minimum fair wage rates until application is made and a special license granted by the Minimum Wage Commission.
 - c. Other causes: No deduction shall be made for any other cause except with the approval of the Commissioner.
2. Certificate of age: Every employer shall keep on file a certificate of proof of age for each male minor employed in the laundry and dry cleaning occupation.
3. Records: Every employer shall keep in a form approved by the Commission the name, address and occupation of each worker as herein defined, together with a record of the hours worked and the wages paid in each week to each worker and shall make such form and with such certification as the Commissioner may prescribe.
4. Statement to employees: The employer shall give to each worker at the time this order becomes effective and to each new worker employed with the first week's pay, a wage rate sheet showing the minimum fair wage rate established by this order. If the employee is hired upon piece rates, the piece rates must be fully set out and the worker must be informed that the weekly compensation will not be less than the minimum fair wage for time workers hereby established.
5. Posted notices: The employer shall post and maintain in a conspicuous place in every room in which women and minors are employed a notice issued by the Commissioner setting forth the provisions of this order and of the administrative regulations hereto applicable and such other and further notices as the Commissioner may require.
6. This order shall become effective on October 1, 1935.

Boston, Massachusetts.
September 5, 1935.

DEWITT C. DEWOLF
Commissioner of Labor and Industries

Table 1. — Disposition of Cases of Non-compliance Pending from Previous Years

(C = Cases; E = Establishments)

SITUATION AND DISPOSITION OF CASES	Boot and Shoe Cut Stock and Findings		Bread and Bakery Products		Candy		Canning and Preserving and Minor Lines of Confectionery		Druggists' Compounds and Proprietary Medicines		Electrical Equipment and Supplies		Jewelry and Related Lines		Knit Goods		Men's Clothing and Raincoats	
	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.
Cases pending from previous years	575	76	80	4	2	1	17	1	10	1	1,099	32	820	57	47	5	143	19
ADJUSTMENTS																		
Wages raised	50	20	16	3	-	-	-	-	-	-	-	-	105	18	8	1	11	5
Left, laid off, or discharged	187	35	16	3	2	1	17	1	-	-	-	-	115	27	17	3	21	5
Change of work, hours, or method of payment	31	14	14	2	-	-	-	-	-	-	-	-	60	17	-	-	31	1
Adjustment promised or reported	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Covered by piece-rate ruling	3	1	-	-	-	-	-	-	-	-	-	-	1	1	2	1	1	1
Incorrectly recorded	1	1	-	-	-	-	-	-	-	-	-	-	13	1	-	-	-	-
Firm out of business	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Technical non-compliance	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Special license type	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not under decree	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Firm left State	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PENDING	208	50	34	2	-	-	-	-	10	1	1,099	32	526	17	20	3	79	15

Table 1. — *Disposition of Cases of Non-compliance Pending from Previous Years — Concluded*

(C = Cases; E = Establishments)

SITUATION AND DISPOSITION OF CASES	Men's Furnish- ings		Muslin Under- wear		Office and Other Building Cleaners		Paper Box		Pocket- book and Leather Goods		Retail Stores		Stationery Goods and Envelopes		Toys, Games and Sporting Goods		Women's Clothing		Total	
	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.
Cases pending from previous years	765	35	1,030	60	27	5	42	11	151	11	3,347	205	206	13	359	19	8	2	8,728	557*
ADJUSTMENTS																				
Wages raised	2	1	30	6	—	—	12	4	38	4	104	37	5	3	28	6	—	—	409	108
Left, laid off, or discharged	36	3	38	5	—	—	13	4	58	2	1,929	180	31	4	122	9	—	—	2,602	282
Change of work, hours, or method of payment	34	1	—	—	—	—	—	—	1	1	3	2	24	1	17	1	—	—	215	40
Adjustment promised or reported	—	—	—	—	—	—	—	—	—	—	82	9	—	—	—	—	—	—	84	11
Covered by piece rate ruling	10	2	—	—	—	—	2	1	—	—	—	—	—	—	2	1	—	—	21	9
Incorrectly recorded	—	—	—	—	—	—	—	—	—	—	11	4	—	—	40	1	—	—	65	7
Firm out of business	—	—	39	3	—	—	—	—	35	1	—	—	—	—	—	—	7	—	81	5
Technical non-compliance	—	—	—	—	19	1	—	—	—	—	—	—	—	—	—	—	1	—	19	1
Special license type	—	—	1	1	—	—	—	—	—	—	1	1	—	—	—	—	—	—	1	1
Not under decree	—	—	—	—	—	—	—	—	8	1	—	—	—	—	—	—	—	—	10	3
Firm left State	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	1
PENDING	683	33	922	54	8	4	15	6	11	4	1,217	176	146	7	150	16	1	1	5,219	421

* In Table 4 of the 1934 report there is a typographical error. The total number of establishments having cases pending should read 279 instead of 249, a difference of 30. Consequently the number of establishments in Table No. 1 of the 1935 report is 30 greater than totals from 1934.

Table 2. — *Disposition of New Cases in Firms Having Cases Pending from Previous Years*

(C = Cases; E = Establishments)

SITUATION AND DISPOSITION OF CASES	Bread and Bakery Products		Root and Shoe Cut Stock and Findings		Candy		Druggists' Compounds and Proprietary Medicines		Jewelry and Related Lines		Knit Goods		Men's Clothing and Raincoats	
	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.
Cases of non-compliance	26	2	136	26	1	1	2	1	57	4	18	2	34	4
Raised wages	—	—	—	—	—	—	—	—	—	—	—	—	6	1
Left, laid off, or discharged	—	—	—	—	—	—	—	—	—	—	—	—	1	1
Special license type	—	—	—	—	—	—	—	—	—	—	—	—	2	1
Covered by piece rate ruling	—	—	—	—	—	—	—	—	—	—	—	—	1	1
PENDING	26	2	136	26	1	1	2	1	57	4	18	2	24	4

SITUATION AND DISPOSITION OF CASES	Men's Furnishings		Muslin Under- wear		Paper Box		Retail Stores		Stationery Goods and Envelopes		Toys, Games and Sporting Goods		Total	
	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.
Cases of non-compliance	22	1	208	9	1	1	1,349	163	3	1	113	7	1,970	222
Raised wages	—	—	—	—	—	—	—	—	—	—	—	—	6	1
Left, laid off, or discharged	—	—	—	—	—	—	—	—	—	—	—	—	1	1
Special license type	—	—	—	—	—	—	—	—	—	—	—	—	2	1
Covered by piece rate ruling	—	—	22	2	—	—	—	—	—	—	—	—	23	3
PENDING	22	1	186	9	1	1	1,349	163	3	1	113	7	1,938	222

Table 3. — Summary of Adjustments in Connection with Inspections in 1935 under Minimum Wage Decrees

(C = Cases; E = Establishments)

SITUATION AND DISPOSITION OF CASES	Boot and Shoe Cut Stock and Findings		Bread and Bakery Products		Candy		Canning and Preserv- ing and Minor Lines of Con- fectionery		Corset		Druggists' Compounds and Pro- prietary Medicines		Electrical Equip- ment and Supplies ¹		Jewelry and Related Lines ¹		Knit Goods ¹		Laundry and Dry Cleaners ¹		Men's Clothing and Raincoat	
	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.
Records for tabulation and estab- lishments represented . . .	1,326	93	1,585	69	4,913	73	1,005	51	502	14	706	37	183	1	655	24	1,656	23	2,132	128	2,112	75
Cases of non-compliance . .	34	10	80	11	48	6	8	4	10	2	16	2	4	1	2	2	125	6	365	41	131	14
ADJUSTMENTS																						
Wages raised . . .	-	-	-	-	7	1	-	-	-	-	1	1	-	-	1	1	-	-	1	1	-	-
Left, laid off, or discharged .	4	1	-	-	8	1	-	-	-	-	9	2	-	-	-	-	-	-	-	-	-	-
Change of work, hours or method of payment . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Adjustment promised or re- ported . . .	-	-	1	1	15	3	1	1	-	-	-	-	-	-	-	-	-	-	1	1	-	-
Covered by piece rate ruling .	9	1	1	-	-	-	-	-	-	-	4	1	-	-	1	1	14	2	163	21	23	1
Incorrectly recorded . . .	-	-	-	-	16	1	-	-	-	-	-	-	-	-	-	-	2	1	-	-	16	3
Firm out of business . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Technical non-compliance .	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Special license type . . .	-	-	1	1	-	-	-	-	10	2	-	-	-	-	-	-	-	-	-	-	-	-
Not under decree . . .	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PENDING . . .	21	9	78	9	2	2	6	2	-	-	2	1	4	1	-	-	109	3	200	18	92	10

Table 3. — Summary of Adjustments in Connection with Inspections in 1935 under Minimum Wage Decrees — Concluded

(C = Cases; E = Establishments)

SITUATION AND DISPOSITION OF CASES	Men's Furnish- ings ¹		Millinery		Muslin Under- wear ¹		Office and Other Building Cleaners		Paper Box		Pocket- book and Leather Goods		Retail Stores		Station- ery Goods and En- velopes ¹		Toys, Games and Sporting Goods ¹		Women's Clothing		Total	
	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.
Records for tabulation and estab- lishments represented . . .	605	13	901	51	532	11	1,937	359	1,787	72	638	22	21,889	2,306	1,045	34	176	4	1,692	109	*48,393	3,672*
Cases of non-compliance . . .	200	7	6	3	346	3	97	22	16	8	2	2	1,812	355	7	5	49	1	12	3	3,370	458
ADJUSTMENTS																						
Wages raised . . .	-	-	-	-	-	-	6	2	-	-	-	-	44	12	-	-	-	-	-	-	60	18
Left, laid off, or discharged . . .	10	2	-	-	-	-	-	-	-	-	-	-	38	15	1	1	-	-	-	-	70	22
Change of work, hours or method of payment . . .	17	1	-	-	-	-	8	2	-	-	-	-	19	5	-	-	-	-	-	-	45	9
Adjustment promised or re- ported . . .	2	1	1	1	-	-	61	8	12	4	1	1	308	91	6	4	-	-	4	1	613	141
Covered by piece rate ruling . . .	23	2	-	-	1	1	-	-	2	2	-	-	-	-	-	-	-	-	-	-	57	11
Incorrectly recorded . . .	-	-	-	-	-	-	-	-	-	-	-	-	2	1	-	-	-	-	-	-	18	2
Firm out of business . . .	-	-	-	-	-	-	-	-	-	-	-	-	10	3	-	-	-	-	-	-	10	3
Technical non-compliance . . .	-	-	-	-	-	-	1	1	-	-	-	-	2	1	-	-	-	-	-	-	4	3
Special license type . . .	7	2	5	2	-	-	-	-	-	-	-	-	2	1	-	-	-	-	2	1	27	9
Not under decree . . .	-	-	-	-	-	-	-	-	-	-	-	-	4	1	-	-	-	-	-	-	4	1
PENDING . . .	141	5	-	-	345	2	21	9	2	2	1	1	1,383	240	-	-	49	1	6	2	2,462	317

¹ Partial inspection, not completed.

* Includes 416 employees in 13 establishments where complete compliance was found.

REPORT OF THE DIVISION OF STATISTICS

ROSWELL F. PHELPS, *Director*

INTRODUCTION

The principal branches of the work of the Division of Statistics are the collection and publication of statistics of labor and manufactures and the answering of inquiries relative to the industries of the Commonwealth, the rates of wages, hours of labor, and the conditions of employment. These several branches of the work of the Division during the year 1935 are discussed in this report.

The statistical data herein presented relate for the most part to the calendar year 1935, but summary data for certain prior years are also included for purposes of comparison, and charts showing, graphically, the trends of employment and earnings of wage-earners in the principal industries and municipalities in the Commonwealth appear in the appendix to this report. As there is no separate printed bulletin of this Division in which these tables and charts have been published, they have been included in this report for purposes of permanent record.

During the past year, this Division has undertaken several special investigations, two of which were made by order of the Legislature, and are discussed later in this report under the following captions:

"Determination of Minimum Wages to be Paid Employees on Public Works."¹ (Chapter 461, Acts of 1935.)

"Investigation Relative to Discrimination Against Older Wage-Earners."² (Chapter 33, Resolves of 1935.)

In addition to these special investigations, the Division has been called upon to furnish much information for the use of various public and private agencies and individuals, and in some cases special inquiries were undertaken in order to secure additional information supplementary to the official records already available in the files.

INDUSTRIAL CHANGES IN MASSACHUSETTS, 1925 TO 1935

The present industrial depression, the beginning of which was marked by a general decline in industrial activity toward the close of the year 1929, not only in Massachusetts but also throughout the United States, gained in intensity until the lowest point in Massachusetts was reached in July, 1932. The year 1933 was the first year since the beginning of the depression in 1929 in which the trend line representing employment of wage-earners in all manufacturing industries, combined, in the State showed a definite movement upward instead of downward. Notwithstanding the increases in 1933, 1934 and 1935, the index number (74.4) for 1935 was still 25.6 per cent below the average (100) for the three-year base period, 1925 to 1927.

In discussing the industrial changes which have occurred in Massachusetts during the past ten years, reference is made in this section of this report to the manufacturing industries only. In Table 1 data are presented for the years 1925 to 1935, inclusive, showing the average number of wage-earners employed in the manufacturing industries in the Commonwealth, the amount paid in wages, the average annual earnings of those employed, the real value of their annual earnings, and the relative cost of living in Massachusetts, based on wage-earners' budgets. Corresponding index numbers for each of these items are also presented. These index numbers have been computed, using as a base (100) the averages of the respective items for the three years, 1925 to 1927. The trends are shown, graphically, on the accompanying chart.

Employment. — On reference to Table 1 and the accompanying chart, it will be observed that in 1926 the index number representing employment of wage-earners in the manufacturing industries in Massachusetts was 102, exceeding the corresponding index numbers for all other years during the period of eleven years specified. With the exception of the year 1929, when there was some increase in employment over 1928, there was a continuous decrease from year to year in the number of wage-earners employed until 1932, when the index number reached the

¹See page 87.

²See page 88.

lowest point (59.3), representing a reduction of 240,095, or 40.7 per cent, in the number employed in 1932 as compared with the average number (590,616) employed during the three-year base period, 1925 to 1927. In 1933, the index number representing employment increased to 67.5, in 1934 it increased to 71.8, and in 1935 there was a further increase to 74.4. While these increases were relatively small, they were very encouraging because they indicated a general upward trend in 1933, 1934 and 1935, which was in marked contrast with the continuous downward trend during the three years, 1930, 1931 and 1932.

Table 1. — *Industrial Trends in Massachusetts, 1925-1935*

(Base — Average for three years, 1925-1927 = 100)

YEARS	ANNUAL STATISTICS OF MANUFACTURES IN MASSACHUSETTS				INDEX NUMBERS ²			
	Average Number of Wage- Earners Employed ¹	Amount Paid in Wages During the Year ¹	Average Annual Earnings of Wage- Earners ¹	Average Number of Wage- Earners Employed ¹	Amount Paid in Wages during the Year ¹	Average Annual Earnings of Wage- Earners ¹	Cost of Living ³	Real Value of Average Annual Earnings
Base ²	590,616	\$720,097,884	\$1,219.23	100.0	100.0	100.0	100.0	100.0
1925	591,438	716,155,593	1,210.87	100.1	99.5	99.3	100.9	98.4
1926	602,343	738,208,510	1,225.56	102.0	102.5	100.5	100.7	99.8
1927	578,068	705,929,549	1,221.19	97.9	98.0	100.2	98.3	101.9
1928	540,927	670,063,291	1,238.73	91.6	93.1	101.6	98.6	103.0
1929	557,494	694,805,312	1,246.30	94.4	96.5	102.2	99.2	103.0
1930	481,449	573,838,044	1,191.90	81.5	79.7	97.8	95.7	102.2
1931	434,441	474,189,202	1,091.49	73.6	65.9	89.5	87.2	102.6
1932	350,521	334,358,550	953.89	59.3	46.4	78.2	78.8	99.2
1933	398,592	354,523,624	889.44	67.5	49.2	73.0	76.3	95.7
1934 ⁴	423,933	408,617,489	963.87	71.8	56.7	79.1	81.8	96.7
1935 ⁵	439,449 ⁵	451,277,155 ⁵	1,026.92 ⁵	74.4 ⁵	62.7 ⁵	84.2 ⁵	85.3	98.7

¹ Compiled from reports of the Annual Census of Manufactures in Massachusetts for the years 1925 to 1934, taken by the Division of Statistics.

² In computing the index numbers the average for the three years, 1925, 1926, and 1927, was taken as the base (100) in each case.

³ Compiled from reports of the Division on the Necessaries of Life.

⁴ Since the publication of the report for 1934 the results of the annual census of manufactures in Massachusetts for the year 1934 have become available and are here substituted for the estimates published in that report.

⁵ Estimates based on results of "Monthly Surveys of Employment and Earnings in Representative Manufacturing Establishments," by the Division of Statistics.

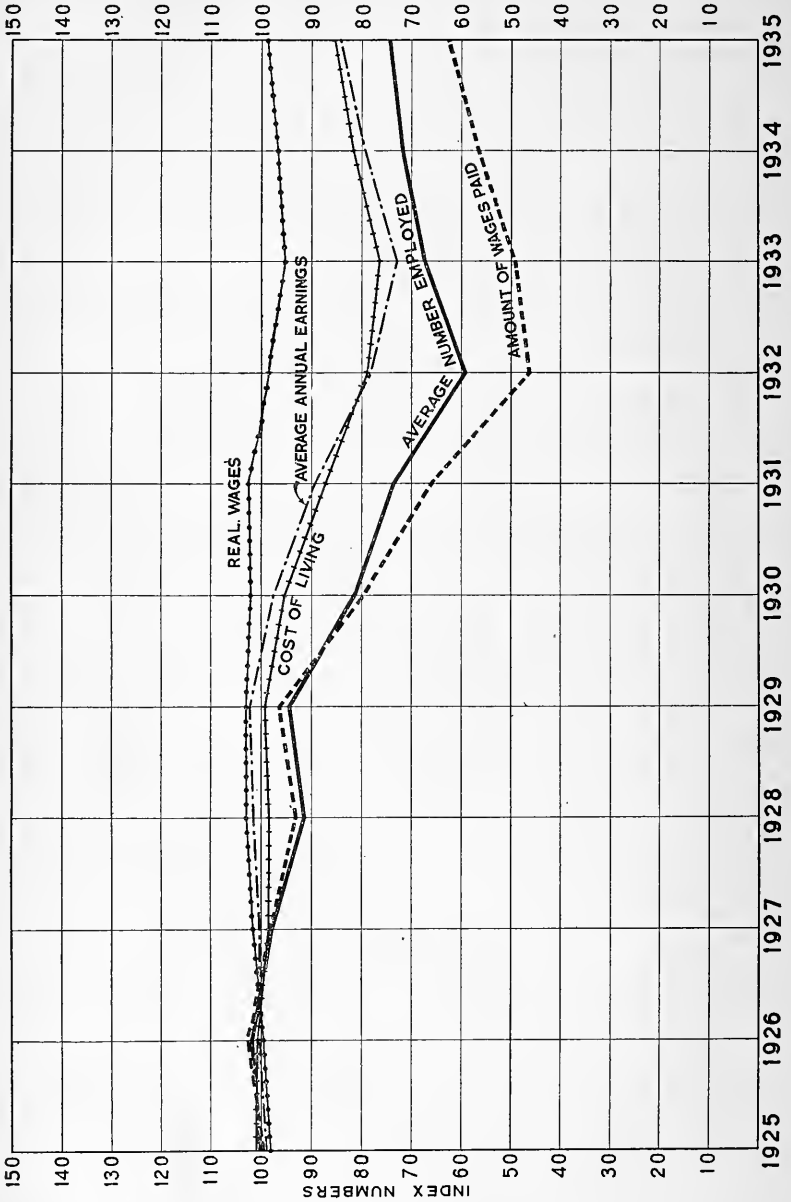
The Wage Fund. — The amount paid in wages to those employed in the manufacturing industries in Massachusetts fluctuated during each of the four years, 1927 to 1930, in about the same proportion as the number of wage-earners employed, but as the depression became more pronounced in 1931 and 1932, many of those employed suffered reductions in earnings, due to part-time employment and decreases in the rates of wages paid, which resulted in proportionately larger reductions in the total amount of wages paid than in the number of wage-earners employed. This is graphically illustrated by the relative trends of two of the lines on the accompanying chart. It will be observed that during the years 1931 and 1932 the line representing the amount of wages paid had a steeper downward trend than did the line representing the number of wage-earners employed. In 1932 the index number representing the amount paid in wages fell to the lowest point (46.4), as compared with 59.3, representing the number of wage-earners employed. The index number representing the amount paid in wages increased to 49.2 in 1933, to 56.7 in 1934, and to 62.7 in 1935, but was still well below the corresponding index numbers (67.5, 71.8, and 74.4, respectively), representing the numbers of wage-earners employed.

Annual Earnings. — The average annual earnings of those employed did not show any marked reduction until 1930, when the index number fell to 97.8, followed by further reductions to 89.5 in 1931, 78.2 in 1932, and 73.0 (the lowest point) in 1933. In 1934 there was an increase to 79.1, and in 1935 there was a further increase to 84.2.

Real Wages. — The real value of the average annual earnings of those employed in each year has been computed by dividing the index number representing the average annual earnings of those employed by the corresponding index number representing the cost of living in that year. During the years 1927 to 1931 the real value of the average annual earnings of those employed was somewhat greater

TRENDS OF EMPLOYMENT, AMOUNTS OF WAGES PAID, ANNUAL EARNINGS, AND REAL WAGES IN MANUFACTURING, AND COST OF LIVING IN MASSACHUSETTS, BY YEARS, 1925-1935

(Base — Average for Three Years 1925, 1926 and 1927 = 100)



than the base (100). In 1933 the index number fell to 95.7 (the lowest point), followed by increases to 96.7 in 1934 and to 98.7 in 1935.

Cost of Living. — No marked decreases in the cost of living occurred until 1930 when the index number fell to 95.7, followed by further decreases to 87.2 in 1931, 78.8 in 1932, and 76.3 in 1933, and by increases to 81.8 in 1934 and 85.3 in 1935. In computing the index numbers representing the cost of living (presented in Table 1), the three years, 1925 to 1927, have been taken as the base period, whereas the Division on the Necessaries of Life, in computing the original series, has taken 1913 as the base year.

In the foregoing paragraphs reference has been made to employment and earnings of wage-earners in the *manufacturing* industries as one general group. Later in this report consideration in some detail will be given to changes which have occurred in the principal manufacturing industries, separately, and in other important fields of employment. While it is true that there were marked reductions in employment and earnings of wage-earners in nearly all lines of business during the four years ending in 1932, and that there were increases in some lines in 1933, 1934, and 1935, all have not been affected to the same extent. No composite picture, therefore, can truly represent the variety of industrial changes which have occurred during recent years.

STATISTICS OF LABOR

LABOR BULLETINS

Labor Bulletin No. 171. Census of Unemployment in Massachusetts, 1934. — The final report on the "Census of Unemployment, 1934" was completed in June, 1935, and was issued as a special report (Labor Bulletin No. 171) of the Division of Statistics. This census was provided for by federal funds granted under C.W.A. and F.E.R.A. projects, and was taken (as of January 2, 1934) under the general supervision of the Department of Labor and Industries. About 250 copies of the preliminary report of the census were issued in planographed and mimeographed form. Three thousand copies of the final report were issued in substantially the same form as the preliminary report, with some additional material, for general distribution as an official report of this Department, and the cost of its publication was borne by the Commonwealth.

Labor Bulletin No. 172. Thirty-Fourth Annual Directory of Labor Organizations in Massachusetts, 1935. — This directory contains, as in previous editions, the name, location, time, and place of meeting, and the name and address of the secretary and business agent of each labor organization having its headquarters in Massachusetts, together with a list of all the national and international labor organizations having one or more affiliated local unions in the United States, and the names and addresses of their respective secretaries, in so far as these items could be ascertained.

The number of organizations listed in this directory was 1,675, of which 138 were national and international organizations, 69 were state and district councils, 95 were central labor unions and councils, and 1,373 were local unions.

Labor Bulletin No. 173. Time Rates of Wages and Hours of Labor in Massachusetts, 1935. — This is the twenty-sixth of a series of annual reports of a similar nature, the first of which was issued by the former Bureau of Statistics in 1910. Nearly all of the information published in the earlier reports of this series was obtained from officials of labor organizations. From year to year additional information obtained from employers has been included and, beginning with the report for 1924, the reports have been issued under the more appropriate title "Time Rates of Wages and Hours of Labor in Massachusetts."

The information obtained from officials of local trade unions relates to basic rates and hours of labor, the terms of which, in most instances, are definitely expressed in joint agreements between employers and employees. These data are presented by industries, trades, and occupations, and by municipalities represented. Additional information, obtained from official records of employers, has reference to rates of wages and hours of labor affecting employees in Massachusetts who are engaged in certain classes of municipal service, and by street and electric railway companies, and passenger bus companies.

MONTHLY SURVEYS AND PRESS ANNOUNCEMENTS

Introductory. — The “monthly surveys” of employment and earnings of wage-earners in Massachusetts were first undertaken in September, 1922, when reports were received from only 202 manufacturing establishments in which 120,804 wage-earners were employed. The scope of these surveys has since been greatly extended, and all important fields of employment in the State are now covered. In December, 1935, reports were received covering 8,617 establishments, in which 457,532 wage-earners were employed. No effort was made to increase the number of reporting establishments in 1935, but special attention was given to improving the list in order to maintain a truly representative coverage.

The Division of Statistics and the Bureau of Labor Statistics of the United States Department of Labor have continued to co-operate in the collection of monthly pay-roll data. The reports are obtained by the Division of Statistics, and copies of the reports desired by the Federal Bureau for use in compiling its national report are forwarded to that office. The Federal Bureau has granted the use of the franking privilege in connection with nearly all of this work, and also furnishes some of the printed forms. No changes of importance were made in the various questionnaires used during the past year.

To each establishment reporting, a summary of the information for the previous month is mailed, with the form, on which pay-roll data for the current month are requested. “Press announcements,” of which there are eleven¹ issued each month in mimeographed form, are also sent to about 750 organizations and individuals requesting any or all of them. These announcements, which are usually issued between the 15th and 20th of the month, show the number of establishments reporting, number of wage-earners employed, and their earnings during the preceding month, according to the pay-rolls of the reporting establishments. Certain other information relative to any unusual changes which have occurred since the previous report is also requested.

In addition to the press announcements relative to the eight principal fields of employment, and to building permits granted, two general summaries are prepared, one presenting the principal data for major employment groups, and the other presenting, in a similar manner, the facts for the leading industries, trades, and similar groups in each of 11 leading cities. In the summary for cities, data, in some detail, are also given for the leading industries under manufacturing, and for the leading groups under trade, and other non-manufacturing employment. It is thus possible to compare the trends of employment and wages in the same industry or trade (where shown) for the eleven principal cities. Both releases were prepared in response to requests for information of this nature. Since these two general summaries were first published, beginning with information for January-February, 1933, they have been in greater demand than any of the other press announcements except the one relative to manufacturing.

Coverage of the Surveys. — In Table 2 data are presented showing, for each industrial group covered by the surveys, the year and month in which the survey was first undertaken and (as of December, 1935) the number of establishments, the number of wage-earners covered, the total amount paid them in wages (in one week), and the approximate size of the sample, expressed as percentages of the total number of persons in the respective industrial groups, according to the most recent census data available.

The estimated coverage for all groups combined, and for manufacturing and for wholesale and retail trade (the two largest groups), is 55.0 per cent. Under “trade” the representation for the wholesale group is 45 per cent, and for the retail group, it is 60 per cent. The public utility companies, which are few in number but cover a wide field of operations, have the largest relative showing (95 per cent). The representation in the building construction industry is only 25 per cent, but it is believed that the 671 contractors who reported in December would in normal times employ possibly 75 per cent of the building tradesmen in the State.

¹ These monthly press announcements relate to the following subjects:

- | | |
|---------------------------------|---|
| A. General Summary—All Surveys. | 5. Public Utilities. |
| B. Summary for Eleven Cities. | 6. Public Employment. |
| 1. Manufacturing. | 7. Office and Miscellaneous Employment. |
| 2. Wholesale and Retail Trade. | 8. Agriculture. |
| 3. Building Construction. | 9. Building Permits Issued. |
| 4. Highway Construction. | |

Table 2.—Coverage of Monthly Surveys of Employment and Earnings of Wage-Earners in Representative Establishments in Massachusetts:
By Industrial Groups: December, 1935

INDUSTRIAL GROUPS	SURVEY FIRST UNDERTAKEN		Number of Establishments Covered	Number of Wage-Earners Covered	Total Amount of Wages Paid to Wage-Earners Covered (one week)	Approximate Size of Sample (Percentage) ¹
	Month	Year				
<i>Manufacturing</i>	Sept.	1922	1,549	255,860	\$5,232,390	55.0
<i>Wholesale and Retail Trade</i>	Nov.	1929	5,091	95,634	\$1,957,367	55.0
Wholesale trade . . .	Aug.	1931 ²	806	17,101	456,064	45.0
Retail trade . . .	Aug.	1931 ²	4,285	78,533	1,501,303	60.0
<i>Public Utilities</i>	Jan.	1929	123	45,783	\$1,431,300	95.0
Steam railroads . . .	Jan.	1929	6	20,879	635,229	100.0
Street and electric railways . . .	Jan.	1929	9	9,393	326,308	95.0
Passenger bus companies . . .	Apr.	1931	30	1,941	50,585	90.0
Gas and electric companies . . .	Apr.	1927	768	5,704	\$145,961	95.0
<i>Construction</i>	Apr.	1927	671	4,957	128,340	35.0
Building construction . . .	Apr.	1931 ²	97	747	17,621	25.0
Highway construction . . .	June	1931	96	20,454	\$568,341	90.0
<i>Municipal Employment</i>	Apr.	1931	137	1,343	\$24,108	70.0
<i>Agricultural Employment</i>	Sept.	1931	873	36,806	\$796,108	10.0
<i>Office and Miscellaneous Employment</i>	Mar.	1931	23	981	16,084	40.0
Amusement and Recreation:						
Clubs and associations . . .	Mar.	1931	119	2,556	62,661	75.0
Theatres . . .	Mar.	1931				60.0
<i>Hotel Employment:</i>						
Hotels . . .	Mar.	1931	71	3,947	60,410	75.0
Hotel restaurants . . .	Jan.	1932	25 ³	1,744	25,220	
<i>Institutional Employment:</i>						
Hospitals . . .	Mar.	1931	30	3,655	56,817	25.0
Schools and colleges . . .	Mar.	1931	23	1,589	35,190	25.0
<i>Office Employment:</i>						
Banks and trust companies . . .	Mar.	1931	152	3,320	97,963	40.0
Insurance companies and agencies . . .	Mar.	1931	79	4,651	142,685	30.0
Miscellaneous offices . . .	Mar.	1931	75	2,550	63,562	20.0
<i>Personal Services:</i>						
Dyers and cleansers . . .	Mar.	1932	78	1,935	32,894	90.0
Laundries . . .	Mar.	1931	137	5,964	97,464	60.0
<i>Trucking and Handling:</i>						
Express and transfer companies . . .	Mar.	1931	29	1,103	30,764	60.0
Teaming, trucking, and handling . . .	Mar.	1931	57	2,810	74,394	60.0
<i>Totals</i>	—	—	8,637	461,553	\$10,145,575	—
Less duplication ⁴ . . .	—	—	20	4,051	125,619	—
<i>All Industrial Groups Combined</i>	—	—	8,617	457,502	\$10,019,956	55.0

¹ Based on number reported as "gainfully employed" — Federal Census, 1930, or later census data.

² Group sub-divided beginning with returns for the date shown.

³ Of the 71 hotels reporting, 25 operated restaurants.

⁴ Certain operations of public utility companies are also included under "Manufacturing."

Many of the contractors employ men only occasionally. The bulletins of the State Department of Public Works are used in revising the list of contractors engaged in highway construction covered by this survey.

The representation for agricultural employment is small, because very few of the employers of agricultural labor employ any large force of workmen except during the planting or harvesting season. The representation in the several classes of wage-earners included under office and miscellaneous employment in no case is less than 25 per cent. The municipalities from which reports are received include all of the 39 cities and nearly all of the large towns in the State, and wherever possible, a representation of at least 50 per cent of the total number of wage-earners in each of the cities and towns has been secured.

Manufacturing. — During the past year there were very few changes in the list of manufacturing establishments reporting. In December the number of establishments from which reports were received was 1,549, or nearly 20 per cent of the total number of establishments engaged in manufacturing in Massachusetts, and the number of wage-earners covered was 255,860, or about 55 per cent of the total number of wage-earners employed in all manufacturing establishments in the State. Efforts are made to maintain a list of reporting establishments which shall be truly representative by industries, by municipalities, and by industries within the principal municipalities. By means of this survey, it is possible to determine shortly after the close of each month the trend of employment and pay rolls during that month in each of the principal manufacturing industries and cities in the State.

The series of index numbers is adjusted each year in conformity with the latest census returns and such changes are made from time to time in the list of reporting establishments as may be necessary to maintain a fully representative sample. It is not possible to maintain an absolutely identical list of reporting establishments for a long period of time because in the course of a year some of those reporting discontinue operations. In such cases other establishments in the same industries and municipalities are added to the list to replace those which cease to report. Because of unavoidable changes in the list of reporting establishments, the monthly index numbers are computed by the "link-relative" method.

The results of the monthly survey of manufacturing establishments are presented in press notices issued between the 15th and 20th of the month following that to which the data relate. These notices show, for 38 principal industries and 33 leading industrial cities, the following data: number of establishments reporting; and for the pay roll week including the 15th of the current and the next preceding month, the number of wage-earners employed, the amount of the pay roll and the average weekly earnings of those employed. In addition to the text and detailed tables there are also included in each issue a chart, showing the trend of employment and of the total amount paid in wages in all manufacturing establishments combined.

Space does not permit of a full presentation in this report of the results of the monthly surveys, but four series of index numbers¹ included in this section show the trends of employment of wage-earners and of the amounts paid in wages in all manufacturing industries as a group and in each of 20 leading industries in the State by months in 1935, with averages for each of the years 1925-1935, inclusive, and also corresponding index numbers for each of 15 of the leading industrial cities. The index numbers of employment, by industries, for each of the years 1925-1932, inclusive, were derived from the annual census data, and the index numbers for 1933, 1934 and 1935 were derived from the monthly survey data. The index numbers representing amounts paid in wages in each of the years were computed from the monthly survey data because the annual census schedule does not provide for the reporting of the amount of the pay rolls *by months*.

For the individual cities, the annual census data are not tabulated so as to show employment by months. Accordingly, the index numbers of employment and of amounts paid in wages in each of the 15 cities have been computed from the monthly survey data and adjusted, using as a base (100.0) the average of the numbers employed in 1925, 1926 and 1927, as determined by the exhaustive census taken in each of those years.

¹ See Tables 3, 4, 5 and 6.

Table 3. — Index Numbers of Employment in Representative Manufacturing Establishments in Massachusetts, All Industries Combined and Twenty Leading Industries: for the Years, 1925-1935, inclusive, and by Months in 1935
(Sources: — Annual Census of Manufactures in Massachusetts, 1925-1932, inclusive; Monthly Survey of Representative Manufacturing Establishments, 1933, 1934, and 1935)

Industries (Arranged in order of average number of employees in 1925, 1926 and 1927)	Number of Wage-Earners ¹	ANNUAL INDEX NUMBERS OF EMPLOYMENT (Base, 100.0 = Average Number Employed in 1925, 1926 and 1927)											
		1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1935
Manufacturing	590,616	100.1	102.0	97.9	91.6	94.3	81.5	73.5	59.3	64.6	68.3	70.8	70.8
Cotton goods	92,841	103.6	98.5	97.9	70.2	76.3	57.1	50.6	35.0	45.5	50.6	47.3	47.3
Boots and shoes	57,710	99.5	103.5	97.0	96.1	95.5	85.9	82.6	75.0	82.1	75.8	67.6	67.6
Woolen and worsted goods	53,526	102.5	102.1	95.4	84.5	85.3	63.5	69.5	53.4	78.2	73.4	102.3	102.3
Electrical machinery, apparatus, and supplies	25,908	96.8	107.7	95.6	95.7	111.3	93.5	77.4	52.4	51.5	60.4	66.2	66.2
Foundry and machine-shop products	19,953	97.9	102.3	99.7	99.2	106.5	92.7	73.9	51.0	49.8	57.2	62.6	62.6
Printing and publishing	14,442	98.5	101.0	99.6	101.3	105.2	104.2	91.6	83.2	80.8	82.4	81.3	81.3
Dyeing and finishing textiles	13,823	100.4	99.8	100.0	98.6	104.5	94.6	94.5	80.4	84.8	92.0	73.2	73.2
Paper and wood pulp	12,829	100.7	102.9	96.4	98.2	96.4	90.4	83.0	73.7	71.7	74.7	77.1	77.1
Textile machinery and parts	12,081	94.3	105.7	98.8	94.0	81.4	83.0	67.3	58.9	57.5	61.8	56.7	56.7
Rubber footwear	10,516	102.1	99.3	98.6	100.5	92.4	88.0	52.0	45.2	51.2	53.5	49.8	49.8
Rubber goods, tires and tubes	10,482	99.6	97.7	102.7	104.7	102.2	85.4	82.6	75.7	92.2	94.5	97.1	97.1
Hosiery and knit goods	10,100	104.5	99.9	95.6	90.0	87.3	80.5	75.6	67.0	68.7	68.0	68.5	68.5
Clothing, men's	9,543	93.3	102.8	104.0	102.2	100.0	101.1	99.5	83.3	111.3	130.7	160.3	160.3
Bread and other bakery products	8,533	98.8	101.9	99.3	102.8	122.0	117.7	118.1	109.2	112.0	122.3	130.4	130.4
Confectionery	8,123	96.5	103.1	103.1	92.2	92.0	80.6	73.2	63.8	62.5	66.3	67.0	67.0
Furniture	8,117	96.5	104.0	99.5	101.3	105.9	90.6	75.8	59.9	64.7	64.4	64.9	64.9
Boot and shoe cut stock and findings	7,520	92.9	103.8	103.2	101.3	105.9	92.0	85.9	77.4	76.6	74.8	71.7	71.7
Silk and rayon goods	6,804	95.5	96.4	108.1	99.7	108.6	83.5	102.0 ²	83.0 ²	139.1 ²	108.9 ²	119.6 ²	119.6 ²
Clothing, women's	6,225	88.1	100.1	111.9	115.0	121.8	122.2	135.7	112.1	100.4	90.6	87.9	87.9

Industries (Arranged in order of average number of employees in 1925, 1926, and 1927)	January	February	March	April	May	June	July	August	September	October	November	December	1935
Manufacturing	70.0	71.6	72.3	71.7	69.0	67.4	67.8	69.5	71.2	73.1	72.9	73.0	73.0
Cotton goods	54.7	56.1	54.0	51.2	43.4	42.1	43.8	39.6	40.8	46.5	49.5	49.3	49.3
Boots and shoes	66.1	71.8	76.6	76.9	69.3	54.9	63.1	71.5	71.2	87.6	59.0	60.0	60.0
Woolen and worsted goods	101.8	99.3	97.5	97.4	93.0	101.3	99.0	101.0	103.0	106.0	111.0	111.9	111.9
Electrical machinery, apparatus, and supplies	57.8	59.2	61.1	62.6	63.7	63.6	63.0	66.8	72.6	76.1	76.7	71.6	71.6
Foundry and machine-shop products	58.1	59.6	60.0	61.1	62.6	63.3	63.2	63.7	64.3	64.9	65.1	65.0	65.0
Printing and publishing	82.0	82.1	82.7	82.6	81.2	79.4	80.6	78.7	81.5	81.1	79.9	84.4	84.4
Dyeing and finishing textiles	75.0	80.6	80.4	76.7	69.5	73.1	68.8	72.1	61.1	65.2	76.5	79.6	79.6
Paper and wood pulp	75.3	77.2	77.8	77.1	78.4	78.1	76.9	75.4	76.7	76.7	77.2	78.6	78.6
Textile machinery and parts	54.9	55.8	56.8	56.9	56.0	57.0	56.4	55.3	55.1	55.7	58.3	61.6	61.6
Rubber footwear	51.2	50.7	49.1	48.7	46.3	44.9	49.8	51.0	50.5	51.6	51.9	52.3	52.3
Rubber goods, tires and tubes	71.7	75.8	78.0	79.0	77.9	76.7	75.1	76.3	76.4	76.0	74.2	72.8	72.8
Leather, tanned, curried, and finished	97.3	96.3	98.6	98.5	91.3	96.8	97.7	98.5	95.8	98.5	98.5	98.6	98.6
Hosiery and knit goods	144.6	139.9	167.8	166.8	141.0	150.8	163.0	173.3	176.4	174.9	149.6	152.6	152.6
Clothing, men's	130.6	139.5	137.1	132.5	132.2	129.6	125.0	127.8	126.5	127.2	126.2	124.3	124.3
Bread and other bakery products	70.2	63.7	65.8	59.7	55.0	55.5	51.8	62.1	79.4	84.6	77.6	78.9	78.9
Confectionery	62.7	63.6	65.0	65.0	63.8	60.4	58.5	64.4	67.7	71.2	69.6	73.0	73.0
Furniture	72.3	74.8	75.6	73.6	70.9	66.4	70.6	73.8	72.2	72.0	67.7	70.6	70.6
Boot and shoe cut stock and findings	112.4	119.5	128.4	120.8	115.9	109.8	108.9	122.5	124.6	131.5	120.8	119.6	119.6
Silk and rayon goods	82.4	87.3	89.4	92.2	91.9	82.5	77.0	83.5	94.5	94.2	94.1	93.3	93.3
Clothing, women's													

¹ Average number of wage-earners employed in 1925, 1926 and 1927 = Base, 100.0.

² The index numbers for the years 1931 to 1935, inclusive, are not directly comparable with those for the years prior to 1931, because of changes in classification.

In a series of charts¹ which appear in the appendix to this report, there are shown graphically the trends of employment and of the amounts paid in wages in all manufacturing industries combined and in each of the 20 leading industries by months during the years 1925-1935, inclusive, and the trends of employment in the 15 leading industrial cities in 1934 and 1935, by months.

In Table 3 the index numbers representing the trend of employment in all manufacturing industries combined and in the 20 principal industries are presented for the years 1925-1935, inclusive, and by months in 1935.

For *all manufacturing industries combined*, the index number representing employment of wage-earners at the lowest point during the depression was 51.7, in July, 1932, since which month employment increased gradually but fairly steadily each month, except for occasional interruptions in the upward trend, until the highest point (73.6) was reached in April, 1934. In 1935 the lowest point was 67.4 in June and the highest point was 73.1 in October, followed by very little change in November and December. The average for the year 1935 was 70.8, or 29.2 per cent below the average for the basic three-year period, 1925-1927, but was higher than the averages for 1932 (59.3), 1933 (64.6), and 1934 (68.3).

Cotton goods manufacturing continued to be one of the leading manufacturing industries in the State most seriously affected by business conditions. The index number representing employment for the year 1935 (based on the average for the three years, 1925-1927), was 47.6, as compared with 35.0 in 1932, 45.5 in 1933, and 50.6 in 1934. The highest point reached in 1935 was 56.1 in February, and the lowest point was 39.6 in August.

In the *boot and shoe industry* the index number representing employment in 1935 was 67.3, the lowest for any year during the entire period, 1925-1935, for which records are here presented. Comparable index numbers for recent years were 75.0 in 1932, 82.1 in 1933, and 75.8 in 1934. The usual seasonal fluctuations occurred in 1935. The highest point reached during the year was 76.9 in April, and the lowest point was 54.9 in June.

In the *woolen and worsted industry* the index number (102.3) in 1935 for the first time since 1925 was above the average (100) for the basic three-year period, 1925-1927, and showed a marked increase over the corresponding index numbers in 1932 (53.4), 1933 (78.2) and 1934 (73.4). The highest point in 1935 was 111.9 in December, and the lowest point was 97.4 in April.

In the manufacture of *electrical machinery, apparatus and supplies* the index number representing employment in 1935 was 66.2, but was somewhat higher than the corresponding index numbers, 60.4 in 1934, 51.5 in 1933, and 52.4 in 1932. During the year 1935 there was some increase during the last five months, and the highest point reached was 76.7 in November, as compared with the lowest point, 57.8 in January.

In the manufacture of *foundry and machine-shop products* there was some increase in employment in 1935 over 1934. The index number in 1935 was 62.6, as compared with 57.2 in 1934, 49.8 in 1933, and 51.0 in 1932. During the year 1935 there were no marked fluctuations in employment from month to month; the highest point was 65.1 in November, and the lowest point was 58.1 in January.

The five major industries discussed above normally provide employment for somewhat over 40 per cent of the total number of wage-earners employed in all manufacturing industries in the State. In the 20 leading industries for which index numbers of employment are presented in Table 3, the averages of the monthly index numbers for the year 1935, ranged in order from the highest to the lowest, were as follows: men's clothing, 160.3; bread and other bakery products, 130.4; silk and rayon goods, 119.6; woolen and worsted goods, 102.3; leather, tanned, curried and finished, 97.1; women's clothing, 87.9; printing and publishing, 81.3; paper and wood pulp, 77.1; rubber goods, tires and inner tubes, 75.9; dyeing and finishing textiles, 73.2; boot and shoe cut stock and findings, 71.7; hosiery and knit goods, 68.5; boots and shoes, 67.3; confectionery, 67.0; electrical machinery, apparatus and supplies, 66.2; furniture, 64.9; foundry and machine-shop products, 62.6; textile machinery and parts, 56.7; rubber footwear, 49.8; and cotton goods, 47.6.

Index numbers representing the total amount paid in wages to wage-earners

¹ See charts, pages 107-115, Plates 1-9.

Table 4. — *Index Numbers of Total Amount Paid in Wages in Representative Manufacturing Establishments in Massachusetts, All Industries Combined and Twenty Leading Industries: for the Years, 1925-1935, inclusive, and by Months in 1935*

(Sources: — Annual Census of Manufactures in Massachusetts, 1925-1932, inclusive; Monthly Survey of Representative Manufacturing Establishments, 1933, 1934, and 1935.)

Industries (Arranged in order of average number of employees in 1925, 1926 and 1927)	Amounts Paid in Wages ¹	ANNUAL INDEX NUMBERS OF AMOUNTS PAID IN WAGES (Base, 100.0 = Average Amount Paid in Wages in 1925, 1926 and 1927)											
		1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	Novem- ber
		1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	
Manufacturing	\$13,810,429	99.5	102.5	98.0	93.1	96.5	79.7	65.9	45.4	47.8	54.6	60.3	
Cotton goods	1,718,193	102.5	99.2	98.3	68.3	73.2	52.9	43.4	25.3	32.8	47.4	37.7	
Boots and shoes	1,286,395	97.7	105.0	97.3	95.2	95.7	75.9	68.1	54.9	54.6	57.4	52.4	
Woolen and worsted goods	1,182,160	105.3	100.5	94.2	84.2	84.9	63.7	60.7	36.8	60.9	60.5	93.8	
Electrical machinery, apparatus, and supplies	691,421	97.4	108.6	94.0	94.2	113.8	88.6	63.1	34.0	32.1	41.8	50.3	
Foundry and machine-shop products	574,274	96.6	103.0	101.2	101.7	110.1	92.1	62.9	41.9	33.0	41.7	50.8	
Printing and publishing	482,840	97.8	101.0	100.4	105.6	111.7	107.6	93.2	78.1	69.8	76.9	77.2	
Dyeing and finishing textiles	308,794	100.0	99.2	100.8	97.7	104.7	92.2	72.7	64.5	65.0	72.1	62.0	
Paper and wood pulp	318,337	98.9	105.2	95.8	98.9	100.3	89.7	72.1	53.6	46.6	53.0	60.3	
Textile machinery and parts	324,741	105.0	99.1	95.9	80.6	84.1	62.5	52.4	30.4	47.0	50.8	53.9	
Rubber footwear	271,755	105.4	95.4	109.2	103.6	95.4	65.5	45.1	31.5	37.5	41.3	40.1	
Rubber goods, tires and inner tubes	261,155	102.1	100.2	97.7	100.7	91.1	76.8	57.0	42.4	51.8	60.2	60.3	
Leather, tanned, curried and finished	273,500	99.4	98.3	102.3	101.9	93.6	81.9	73.0	60.7	75.4	80.9	88.0	
Hosiery and knit goods	182,627	102.0	99.9	98.1	96.2	93.9	82.7	71.1	55.7	54.4	60.3	61.7	
Clothing, men's	188,826	91.2	105.1	103.7	97.4	100.2	93.1	83.0	61.8	77.2	101.9	140.0	
Bread and other bakery products	217,211	100.6	102.0	97.4	100.2	121.0	115.1	112.6	94.0	94.6	104.3	112.6	
Confectionery	137,269	94.3	104.5	101.2	96.6	94.2	87.9	69.6	52.7	46.0	56.8	58.6	
Furniture	209,072	93.3	105.1	101.2	101.9	109.4	87.9	64.7	44.3	43.2	45.6	49.6	
Boot and shoe cut stock and findings	164,927	93.0	104.3	102.7	96.4	97.6	84.4	74.0	60.0	60.0	63.6	63.3	
Silk and rayon goods	139,885	93.8	101.8	104.4	97.9	97.4	80.8	79.7 ²	57.2 ²	101.2 ²	78.5 ²	97.3 ²	
Clothing, women's	133,271	85.0	101.3	113.7	109.9	121.7	114.1	110.4	77.3	65.9	69.7	69.1	

Industries (Arranged in order of average number of employees in 1925, 1926 and 1927)	Amounts Paid in Wages ¹	MONTHLY INDEX NUMBERS OF AMOUNT PAID IN WAGES IN 1935 (Base, 100.0 = Average Amount Paid in Wages in 1925, 1926 and 1927)											
		January	February	March	April	May	June	July	August	Septem- ber	Octo- ber	Novem- ber	Decem- ber
		January	February	March	April	May	June	July	August	Septem- ber	Octo- ber	Novem- ber	
Manufacturing	58.7	60.8	62.3	60.9	58.2	56.8	57.3	59.8	61.9	63.0	59.8	63.9	
Cotton goods	44.5	46.0	43.7	40.4	35.4	33.9	33.9	30.7	31.4	36.7	37.2	39.5	
Boots and shoes	52.1	60.5	68.7	67.0	52.1	38.5	47.6	58.5	56.8	50.1	36.9	40.3	
Woolen and worsted goods	95.3	89.6	88.9	88.6	90.7	93.6	89.8	92.1	94.2	98.9	98.0	105.9	
Electrical machinery, apparatus, and supplies	42.6	44.3	46.4	46.8	48.2	47.6	46.4	51.6	57.2	60.0	56.5	56.3	
Foundry and machine-shop products	44.4	47.5	48.6	48.8	49.9	52.0	51.8	52.1	52.9	53.6	51.4	57.1	
Printing and publishing	77.5	78.7	78.4	77.3	77.7	74.1	75.9	75.7	78.2	76.9	72.9	83.0	
Dyeing and finishing textiles	64.6	68.5	71.2	62.0	59.6	58.6	52.5	60.8	53.7	58.7	63.1	70.8	
Paper and wood pulp	56.4	60.1	61.8	60.6	61.0	60.2	60.3	57.1	61.8	61.7	59.0	63.8	
Textile machinery and parts	49.6	51.2	51.9	49.8	51.4	55.1	51.9	51.5	53.2	55.9	56.6	69.2	
Rubber footwear	55.8	61.9	39.4	38.2	34.6	35.1	39.7	41.0	41.5	42.8	45.2	45.2	
Rubber goods, tires, and tubes	41.6	40.3	39.4	62.0	61.4	60.8	59.6	60.4	61.6	62.4	55.2	59.2	
Leather, tanned, curried, and finished	87.3	87.5	88.9	83.9	79.7	87.0	87.8	90.7	87.9	90.4	88.7	95.9	
Hosiery and knit goods	58.0	62.0	61.3	59.0	58.9	55.7	51.8	65.0	72.0	68.9	65.3	63.0	
Clothing, men's	120.4	141.7	154.9	145.5	106.4	115.6	149.8	166.0	172.9	157.5	120.0	129.8	
Bread and other bakery products	114.0	119.1	117.8	113.7	112.8	117.2	112.8	109.5	111.2	109.0	107.1	107.0	
Confectionery	62.3	55.2	57.5	48.8	47.4	47.9	43.1	55.0	75.3	72.9	66.5	71.4	
Furniture	44.0	45.6	48.5	48.5	45.5	44.4	42.8	49.2	56.5	60.2	55.4	54.6	
Boot and shoe cut stock and findings	64.6	68.9	68.7	64.8	62.1	56.1	62.1	66.2	63.1	63.6	56.2	63.7	
Silk and rayon goods	92.1	101.1	104.3	96.5	89.6	88.0	88.0	96.9	96.8	103.7	100.5	98.1	
Clothing, women's	63.2	69.2	72.5	77.7	75.8	61.6	49.5	65.5	79.6	76.5	68.2	70.4	

¹ Average of the amounts paid in wages in 1925, 1926 and 1927 = Base, 100.0.

² Index numbers for the years 1931 to 1935, inclusive, are not strictly comparable with those for years prior to 1931, because of changes in classification.

Table 5. — Average Weekly Earnings of Wage-earners in Manufacturing Establishments in Massachusetts, All Industries Combined and Twenty Leading Industries, for the Years 1925-1935, inclusive, and by Months in 1935

Base. — Average Weekly Earnings of Wage-earners Employed in the Three-Year Period 1925-1926-1927.

(Sources. — Annual Census of Manufactures, 1925-1933, and Monthly Survey of Representative Manufacturing Establishments, 1934 and 1935.)

Industries (Arranged in order of average number of employees in 1925, 1926 and 1927)	AVERAGE WEEKLY EARNINGS — BY YEARS											
	Average Weekly Earnings 1925-1927	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935
Manufacturing	\$23.39	\$23.23	\$23.51	\$23.42	\$23.76	\$23.91	\$22.86	\$20.94	\$18.29	\$17.06	\$18.98	\$20.00
Cotton goods	18.52	18.31	18.64	18.59	18.01	17.76	16.90	15.87	13.41	13.14	15.04	15.34
Woolen and worsted goods	22.29	21.88	22.62	22.37	22.08	22.35	19.85	18.38	16.33	15.00	17.34	17.68
Electrical machinery, apparatus and supplies	26.08	26.87	26.91	26.27	26.29	27.27	25.31	19.29	15.23	15.93	16.41	18.42
Foundry and machine-shop products	28.78	28.39	28.98	28.98	29.49	29.77	28.61	24.51	23.66	21.03	20.39	22.45
Printing and publishing	33.44	33.17	33.16	33.99	34.86	35.48	34.51	34.02	31.38	27.58	29.79	29.54
Dyeing and finishing textiles	22.34	22.26	22.25	22.52	22.45	22.37	21.76	21.52	17.90	17.79	18.82	20.27
Paper and wood pulp	24.39	24.39	25.35	24.67	24.99	25.83	24.60	21.94	18.20	16.56	18.67	20.56
Textile machinery and parts	25.45	24.90	25.51	25.94	25.18	25.76	23.44	22.50	19.02	19.45	22.66	22.66
Rubber footwear	22.54	22.78	20.29	24.56	22.58	23.23	21.68	19.54	15.68	16.49	19.65	20.45
Rubber goods, tires and tubes	26.10	24.83	25.07	24.61	24.93	24.38	23.17	22.12	17.46	17.39	19.74	19.85
Leather, tanned, curried, and finished	18.10	17.66	18.09	18.54	19.33	19.46	18.98	17.00	15.03	13.80	15.66	15.88
Hosiery and knit goods	19.79	19.35	20.23	19.79	18.84	19.85	18.45	16.51	14.92	13.85	15.96	17.67
Bread and other bakery products	25.46	25.92	25.49	24.97	24.83	25.24	24.90	24.27	21.69	21.15	20.26	20.85
Confectionery	16.90	16.99	17.12	16.59	17.72	17.32	18.45	16.09	13.95	13.74	16.17	16.13
Furniture	25.75	24.91	26.15	26.19	25.91	26.61	24.99	21.98	19.03	16.77	17.49	18.99
Boot and shoe cut stock and findings	21.94	21.94	22.05	21.82	20.87	21.02	18.89	17.12	15.99	17.69	18.48	18.48
Silk and rayon goods	20.59	20.19	21.72	19.86	20.19	18.44	19.89	16.06	14.16	13.47	15.96	17.90
Clothing, women's	21.65	20.68	21.67	22.59	20.46	21.40	20.00	17.70	14.77	13.87	15.57	15.87

Industries (Arranged in order of average number of employees in 1925, 1926 and 1927)	AVERAGE WEEKLY EARNINGS IN 1935 — BY MONTHS											
	January	February	March	April	May	June	July	August	September	October	November	December
Manufacturing	\$19.76	\$20.01	\$20.29	\$20.02	\$19.83	\$19.78	\$19.84	\$20.20	\$20.42	\$20.21	\$19.15	\$20.45
Cotton goods	15.88	16.00	15.79	15.39	15.77	15.14	14.94	14.97	14.88	15.27	14.53	15.49
Woolen and shoes	18.08	19.34	20.60	20.03	17.28	16.00	17.25	18.68	18.23	16.95	14.29	15.37
Electrical machinery, apparatus and supplies	21.82	22.08	22.43	22.09	22.38	22.13	18.57	18.34	18.27	18.74	17.74	19.01
Foundry and machine-shop products	22.62	23.56	23.94	23.62	23.35	24.26	24.22	22.87	23.33	23.34	21.81	23.29
Printing and publishing	29.41	29.85	29.53	29.15	29.79	29.05	29.30	29.94	29.89	29.56	28.36	30.60
Dyeing and finishing textiles	20.62	20.35	21.22	19.35	20.54	19.21	18.26	20.17	21.04	21.52	19.02	21.26
Paper and wood pulp	19.69	20.49	20.92	20.67	20.45	20.28	20.63	19.91	21.19	21.13	20.78	21.32
Textile machinery and parts	21.52	21.84	21.78	20.85	21.85	23.02	21.94	22.18	23.02	23.93	23.19	26.84
Rubber footwear	20.67	20.21	20.42	19.93	18.95	19.85	20.46	20.46	20.91	21.08	20.72	21.99
Rubber goods, tires and tubes	19.42	20.39	20.13	19.60	19.68	19.79	19.81	19.77	20.15	20.50	18.59	20.31
Leather, tanned, curried, and finished	23.77	23.61	23.91	23.28	23.13	23.81	23.79	24.38	24.30	24.30	23.84	25.75
Hosiery and knit goods	15.82	16.22	15.66	15.18	15.35	15.63	14.77	16.49	17.42	16.82	15.83	16.31
Clothing, men's	16.93	18.06	18.80	17.77	15.38	15.63	18.47	19.49	19.90	18.29	16.16	17.13
Bread and other bakery products	21.05	20.63	20.77	20.78	20.72	21.42	21.01	20.68	21.52	20.67	20.47	20.76
Confectionery	16.43	16.06	16.19	15.13	15.93	15.98	15.41	16.42	17.53	15.93	15.84	16.75
Furniture	17.46	18.11	18.57	18.43	17.76	18.30	18.21	19.03	20.77	18.54	19.87	20.31
Boot and shoe cut stock and findings	18.69	19.25	19.00	18.40	18.31	17.70	18.44	18.81	18.33	18.54	17.42	18.92
Silk and rayon goods	18.04	18.61	17.87	17.58	18.31	17.04	17.77	17.77	17.08	17.84	18.20	18.22
Clothing, women's	15.63	16.16	16.53	17.17	16.82	16.23	14.44	16.04	17.21	16.59	14.03	14.61

employed in all manufacturing industries combined, and in each of the 20 principal industries during the years 1925-1935, inclusive, are presented in Table 4.

The total amount paid in wages to the wage-earners employed in all manufacturing industries, combined, in 1935, was less by 39.7 per cent than the average amount paid in wages for the three years, 1925-1927, taken as a base period, but the index number (60.3) in 1935 exceeded the corresponding index numbers, 54.6 in 1934, 47.8 in 1933, and 46.4 in 1932. An examination of the records for prior years shows that the trend of the total amounts paid in wages ordinarily followed very closely the trend of employment, but during the period of the depression the losses in the amount of wages paid were, relatively, much greater than the decreases in the numbers of wage-earners employed, due not only to reductions in the numbers employed, but also to part-time employment, and decreases in rates of wages of those who were employed. For example, the index number representing the amount paid in wages in 1932 (the worst year of the depression) was 46.4, while the index number representing employment was 59.3. In 1933, the number of wage-earners employed increased at a proportionately greater rate than the amount paid in wages. In 1934 and 1935, the converse was true, because there were increases not only in the number of wage-earners employed in each of these years, but also in the earnings of those employed, as a result of more hours of employment and increases in the rates of wages which they received.

The index numbers representing the amounts paid in wages in 1935 in the 20 leading industries, arranged in order from the highest to the lowest, were as follows: men's clothing, 140.0; bread and other bakery products, 112.6; silk and rayon goods, 97.3; woolen and worsted goods, 93.8; leather, tanned, curried and finished, 88.0; printing and publishing, 77.2; women's clothing, 69.1; boot and shoe cut stock and findings, 63.3; dyeing and finishing textiles, 62.0; hosiery and knit goods, 61.7; paper and wood pulp, 60.3; rubber goods, tires and inner tubes, 60.3; confectionery, 58.6; textile machinery and parts, 53.9; boots and shoes, 52.4; foundry and machine-shop products, 50.8; electrical machinery, apparatus and supplies, 50.3; furniture, 49.6; rubber footwear, 40.1; and cotton goods, 37.7.

In several of the leading industries there was a relatively large improvement in the amount of wages paid, in 1935, as compared with 1934, as follows: woolen and worsted goods; men's clothing; silk and rayon goods; bread and other bakery products; electrical machinery, apparatus and supplies; foundry and machine-shop products; and leather, tanned, curried and finished.

The earnings of employees are affected by the continuity of their employment, by part-time employment, and by changes in wage rates. The average weekly earnings of wage-earners employed in all manufacturing industries combined, and in each of twenty leading industries for each of the years 1925 to 1935, and also by months in 1935, are presented in Table 5. The averages for the years 1925-1933 were derived from the annual census of manufactures for the respective years, and the average weekly earnings by months in 1935 were as reported by representative manufacturing establishments in connection with the monthly survey.

The effect of the depression on the earnings of wage-earners is indicated by a comparison of the average weekly earnings during the several years with the corresponding earnings during the base period, 1925-1927. For all manufacturing industries combined, there was a decrease from \$23.39, the average for 1925-1927, to the lowest amount, \$17.06 in 1933 — a decrease of 27.1 per cent. There were similar decreases in each of the 20 leading industries. In five of the 20 leading industries the lowest average weekly earnings in any of the years specified were reported in 1932, namely, woolen and worsted goods; electrical machinery, apparatus and supplies; textile machinery and parts; rubber footwear; and leather, tanned, curried and finished. For each of the other 15 leading industries the lowest average weekly earnings were reported in 1933.

For the 20 leading industries, the average weekly earnings in 1935, arranged in order from the highest to the lowest, were as follows: printing and publishing, \$29.54; leather, tanned, curried and finished, \$23.99; foundry and machine-shop products, \$23.98; textile machinery and parts, \$22.66; electrical machinery, apparatus and supplies, \$22.45; bread and other bakery products, \$20.85; paper and wood pulp, \$20.56; rubber footwear, \$20.45; dyeing and finishing textiles,

Table 6. — *Index Numbers of Employment in Representative Manufacturing Establishments in 15 Leading Industrial Cities in Massachusetts for the Years, 1925-1935, inclusive, and by Months in 1935*

(Sources: — Annual Census of Manufactures in Massachusetts, 1925-1932, inclusive; Monthly Survey of Representative Manufacturing Establishments, 1933, 1934, and 1935.)

CITIES	Number of Wage-Earners ¹	ANNUAL INDEX NUMBERS OF EMPLOYMENT (Base, 100.0 = Average Number Employed in 1925, 1926, and 1927)											
		1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1935
Boston	78,364	98.7	102.9	98.4	96.3	97.7	87.4	74.1	58.7	59.8	64.6	67.4	
Brookton	12,682	103.8	100.6	95.6	95.7	99.3	92.2	84.0	63.0	69.9	75.1	75.8	
Cambridge	21,859	100.4	103.9	95.7	97.7	100.6	88.6	73.8	63.5	69.1	70.5	70.4	
Chicopee	10,171	103.6	102.4	94.0	103.1	105.8	80.4	64.2	49.4	46.9	63.3	62.8	
Fall River	31,146	98.2	100.7	101.1	82.0	84.3	68.5	70.8	55.6	73.0	77.3	59.3	
Fitchburg	8,411	105.5	100.0	94.5	76.7	78.2	68.7	60.5	50.6	60.8	65.5	70.4	
Haverhill	11,080	104.0	107.5	88.5	87.2	73.5	72.9	64.4	64.3	75.2	69.1	70.7	
Holyoke	16,499	103.0	108.9	98.1	88.7	83.5	69.5	62.8	51.3	64.5	57.5	66.7	
Lawrence	25,983	101.1	103.1	95.8	81.0	89.1	79.2	90.4	66.3	82.6	76.5	108.5	
Lowell	20,405	105.7	102.2	92.1	84.5	93.8	86.1	76.3	61.5	59.7	66.3	60.3	
Lynn	20,551	92.2	106.8	101.0	97.7	99.8	86.1	76.3	61.5	59.7	66.3	60.3	
New Bedford	35,308	101.1	99.5	99.4	60.2	91.1	72.9	66.7	46.6	65.9	69.8	71.0	
Peabody	6,085	95.7	99.3	105.0	109.1	104.9	93.5	89.0	79.5	89.8	95.3	95.3	
Springfield	17,989	98.3	108.4	93.3	99.2	103.6	86.8	77.5	62.3	69.4	79.5	78.1	
Worcester	31,047	100.3	101.9	97.8	96.9	102.8	88.7	77.2	54.8	74.6	80.9	82.4	

CITIES		MONTHLY INDEX NUMBERS OF EMPLOYMENT IN 1935 (Base, 100.0 = Average Number Employed in 1925, 1926, and 1927)											
		January	February	March	April	May	June	July	August	September	October	November	December
Boston	65.1	66.8	68.5	68.9	65.9	65.9	63.5	63.6	67.0	69.5	71.8	69.0	68.9
Brookton	76.6	78.3	79.6	80.2	75.9	68.7	73.2	73.2	78.6	79.1	78.7	71.9	69.1
Cambridge	71.3	72.5	72.5	69.4	65.5	67.7	66.4	66.4	68.9	73.8	72.7	72.2	72.1
Chicopee	67.7	70.6	74.2	77.9	71.6	74.2	70.6	70.6	68.4	67.7	64.9	58.7	70.8
Fall River	67.1	69.8	64.3	57.9	53.9	50.3	42.3	42.3	25.4	36.9	52.5	53.4	51.3
Fitchburg	71.5	72.7	70.4	70.9	72.7	73.7	74.2	74.2	72.5	74.2	76.1	77.5	78.5
Haverhill	72.3	73.3	66.7	71.6	66.8	61.2	72.8	72.8	77.7	73.9	71.1	62.0	62.0
Holyoke	60.9	65.1	68.0	64.7	65.5	65.0	64.0	64.0	65.1	67.4	73.7	71.6	69.9
Lawrence	105.6	104.2	105.3	107.0	106.1	105.4	103.7	103.7	107.9	109.3	111.9	116.3	118.7
Lowell	56.4	58.0	59.2	58.4	57.3	56.2	57.1	57.1	62.0	64.2	65.5	65.9	63.3
Lynn	57.8	56.6	61.4	60.5	58.3	51.5	55.2	55.2	61.1	61.1	57.9	54.4	55.1
New Bedford	75.4	77.0	76.6	73.4	67.6	67.2	66.9	66.9	68.3	69.3	69.2	70.1	70.8
Peabody	98.6	98.3	97.5	94.6	81.4	98.7	96.3	96.3	98.5	84.0	88.1	103.2	104.2
Springfield	74.3	78.1	81.1	83.1	81.4	74.8	74.5	74.5	74.2	78.3	78.4	78.5	80.3
Worcester	77.9	80.5	83.0	83.6	83.6	81.6	79.0	79.0	80.7	84.2	84.3	84.6	85.6

¹ Average number of wage-earners employed in 1925, 1926 and 1927 = Base, 100.0.

\$20.27; rubber goods, tires and tubes, \$19.85; furniture, \$18.99; boot and shoe cut stock and findings, \$18.48; woolen and worsted goods, \$18.42; silk and rayon goods, \$17.90; boots and shoes, \$17.68; men's clothing, \$17.67; confectionery, \$16.13; hosiery and knit goods, \$15.88; women's clothing, \$15.87; and cotton goods, \$15.34. The industries for which the lowest average weekly earnings were reported were those in which a large proportion of those employed were women.

In each of the 20 leading industries the average weekly earnings of employees in 1935 exceeded the lowest earnings reported in any year during the period 1925 to 1935, inclusive. In six of the industries the percentage increases in 1935 over the lowest recorded during the period exceeded 20 per cent, as follows: silk and rayon goods, 32.9; rubber footwear, 30.4; electrical machinery, apparatus and supplies, 29.6; men's clothing, 27.8; paper and wood pulp, 24.2; and woolen and worsted goods, 20.9. In 12 of the industries the percentage increases ranged between 10 and 20 per cent, and in two the increases were less than 10 per cent, namely, printing and publishing (7.1), and bread and other bakery products (2.9).

In Table 6 index numbers representing the average number of wage-earners employed in the manufacturing industries in each of the 15 leading cities are presented for the years 1925 to 1935, inclusive, and by months in 1935. In each of 13 of the 15 cities, the lowest index number of employment in any of the years specified was reported in 1932, and in two cities (Chicopee and Lynn) the lowest reported was in 1933. In 1935 the annual index number for each of the cities (except Fall River and Lynn) was higher than the lowest index number reached in any year during the period under consideration.

The annual index numbers for 1935, arranged in order from the highest to the lowest, for the several cities, were as follows: Lawrence, 108.5; Peabody, 95.3; Worcester, 82.4; Springfield, 78.1; Brockton, 75.8; Fitchburg, 73.7; New Bedford, 71.0; Cambridge, 70.4; Haverhill, 70.4; Chicopee, 69.8; Boston, 67.4; Holyoke, 66.7; Lowell, 60.3; Lynn, 57.6; and Fall River, 52.3. The high number (108.5) in Lawrence was due primarily to improvement in the woolen and worsted goods industry in that city. In Peabody, a relatively high index number (95.3) was reported in each of the years 1934 and 1935. The low index number (52.3) for Fall River in 1935 was due principally to marked curtailment of production in the cotton mills, and the discontinuance of operations in some mills which had formerly been important in the manufacturing activity of the city.

In Table 7 index numbers, representing the total amounts paid in wages in the manufacturing industries in the 15 leading cities, are presented for the years 1925 to 1935, inclusive, and by months in 1935. In each of 12 of the 15 leading cities the lowest index number representing the total amount paid in wages in any of the years specified was reported in 1932, and in three cities (Boston, Chicopee and Lynn) the lowest reported was in 1933. In 1935 the annual index number for each of the 15 cities, except Fall River, exceeded the lowest index number reported in any year during the entire period.

The annual index numbers representing the total amount paid in wages in 1935, arranged in order from the highest to the lowest, for the 15 leading cities, were as follows: Lawrence, 88.7; Peabody, 86.9; Worcester, 71.4; Springfield, 66.5; Brockton, 60.5; Chicopee, 59.9; Cambridge, 58.8; Fitchburg, 58.5; Holyoke, 58.2; Boston, 57.9; New Bedford, 56.0; Lowell, 53.6; Haverhill, 52.1; Lynn, 47.0; and Fall River, 42.1.

Wholesale and Retail Trade. The collection of monthly pay roll data from wholesale and retail trade establishments, first undertaken by the Division in November, 1929, has been extended in scope, and in December, 1935, reports were received covering 5,091 establishments in which 95,634 wage-earners were employed, or approximately 55 per cent of the total number of wage-earners employed in all wholesale and retail establishments in the State. The results are made public in monthly press notices, showing the number of reports received, the number of establishments covered, the number of wage-earners employed, and the amount distributed in wages for each of ten principal trade groups, with a further classification by wholesale or retail trade, and "chain stores" and "independent stores," where such classification is applicable. Similar data are also presented for 19 cities which are important trading centers. For several groups of "chain stores" a separate tabulation of the returns by cities is not made, but the omission of these returns from the tabulation by cities does not materially affect the comparability of the results.

Table 7. — *Index Numbers of Amounts Paid in Wages in Representative Manufacturing Establishments in 15 Leading Industrial Cities in Massachusetts for the Years, 1925-1935, inclusive, and by Months in 1935*

(Sources: — Annual Census of Manufactures in Massachusetts, 1925-1932, inclusive; Monthly Survey of Representative Manufacturing Establishments, 1933, 1934, and 1935.)

CITIES	Average Amounts Paid in Wages Per Week ¹	ANNUAL INDEX NUMBERS OF AMOUNTS PAID IN WAGES (Base, 100.0 = Average of the Amounts Paid in Wages in 1925, 1926 and 1927)											
		1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1935
Boston	\$2,039,987	97.6	104.0	98.4	98.6	99.5	88.0	68.4	49.8	46.0	52.7	57.9	57.9
Brookline	294,147	102.7	101.1	96.2	95.3	100.1	89.0	69.1	50.0	50.3	57.7	60.5	60.5
Cambridge	527,490	99.7	104.6	95.7	98.2	99.8	89.1	69.3	49.7	51.3	56.5	58.8	58.8
Chicago	252,173	103.9	102.6	93.5	103.3	108.1	79.9	61.0	39.8	32.5	51.1	59.9	59.9
Fall River	558,883	96.9	102.4	100.7	79.0	79.8	64.6	60.5	41.0	53.9	64.6	42.1	42.1
Fitchburg	196,173	102.7	102.8	94.5	81.6	79.8	66.7	50.7	35.9	38.5	46.3	58.5	58.5
Haverhill	258,751	103.0	109.0	88.0	84.6	77.5	66.2	56.9	45.5	49.6	50.9	52.1	52.1
Holyoke	359,585	101.1	101.3	97.6	89.1	87.5	71.1	56.9	40.8	47.7	45.8	58.2	58.2
Lawrence	583,913	101.8	103.1	95.1	80.8	88.5	76.0	80.2	43.2	57.8	55.5	88.7	88.7
Lowell	390,446	104.0	103.2	92.8	86.2	84.0	61.5	61.5	47.8	51.1	55.7	53.6	53.6
Lynn	542,184	92.9	106.2	100.9	96.9	101.1	81.9	62.4	41.4	44.6	52.2	56.0	56.0
New Bedford	698,356	101.9	98.1	100.3	61.8	87.3	67.5	56.0	33.5	44.6	52.2	83.8	86.9
Peabody	150,550	94.6	100.1	105.3	104.8	104.1	89.0	83.6	65.3	76.2	65.8	66.5	66.5
Springfield	457,322	97.3	110.4	92.3	100.0	99.6	85.0	72.3	50.5	52.3	63.2	70.2	70.2
Worcester	819,296	99.1	104.0	96.9	99.2	105.9	83.2	63.8	41.0	52.3	64.2	71.4	71.4

CITIES	MONTHLY INDEX NUMBERS OF AMOUNTS PAID IN WAGES IN 1935 (Base, 100.0 = Average of the Amounts Paid in Wages in 1925, 1926 and 1927)											
	January	February	March	April	May	June	July	August	September	October	November	December
Boston	54.4	57.0	59.6	60.7	56.4	54.4	54.7	57.8	60.7	61.5	56.8	60.8
Brookline	63.6	71.4	59.9	64.9	55.3	53.5	57.1	63.2	62.6	62.4	56.8	60.8
Cambridge	59.1	59.9	59.9	55.3	52.6	55.5	55.7	58.8	65.0	60.5	59.8	64.0
Chicago	59.7	63.1	69.4	70.4	60.8	63.2	60.9	56.9	56.5	52.3	45.3	60.8
Fall River	56.1	58.0	53.3	45.6	44.7	40.1	34.2	20.2	28.2	42.0	40.2	42.7
Fitchburg	54.6	57.3	55.9	54.6	56.9	57.6	59.4	57.6	59.2	61.8	60.0	67.3
Haverhill	52.7	56.6	61.3	54.9	48.9	41.7	54.5	58.5	54.9	53.1	43.4	44.1
Holyoke	53.8	58.2	60.6	57.5	49.9	57.4	56.1	56.3	58.1	62.8	59.8	61.7
Lawrence	88.6	83.9	87.6	88.7	86.9	84.7	81.2	89.8	89.8	92.0	91.1	100.4
Lynn	49.5	52.1	53.4	51.0	50.3	48.9	52.4	51.0	58.6	60.5	54.3	56.4
New Bedford	60.1	44.3	51.5	49.3	46.2	39.7	44.8	51.0	48.3	44.8	54.3	57.0
Peabody	89.9	87.5	89.2	81.0	74.6	53.6	52.4	52.6	52.8	54.3	89.5	100.7
Springfield	63.5	67.0	70.2	71.0	70.4	63.1	83.8	92.8	81.8	86.2	63.2	70.2
Worcester	63.9	68.0	70.9	71.6	70.8	69.8	68.9	71.0	74.8	74.8	72.8	78.9

¹ Average of the amounts paid in wages in 1925, 1926 and 1927 = Base, 100.0.

Table 8. — Index Numbers of Employment in Representative Establishments in Wholesale and Retail Trade in Massachusetts — All Trade Groups, Combined and Eleven Leading Groups for the Years, 1932-1935, inclusive, and by Months in 1935

(Source: — Monthly Survey of Representative Establishments in Wholesale and Retail Trade)

TRADE GROUPS	ANNUAL INDEX NUMBERS OF EMPLOYMENT ¹ (Base, 100.0 = Average Number Employed in September, 1931)				
	1931 ²	1932	1933	1934	1935
Wholesale and Retail Trade . . .	102.0	91.4	88.3	91.8	85.9
<i>Wholesale Trade . . .</i>	<i>96.4</i>	<i>85.5</i>	<i>81.6</i>	<i>84.6</i>	<i>82.8</i>
Automobiles, accessories, gas and oil . . .	100.3	87.9	87.2	102.6	98.9
Groceries, provisions, meats and fish . . .	97.7	86.7	84.1	86.6	85.0
<i>Retail Trade . . .</i>	<i>103.4</i>	<i>92.9</i>	<i>90.1</i>	<i>93.4</i>	<i>85.9</i>
Automobiles, accessories, gas and oil . . .	96.4	82.0	77.3	87.4	85.5
Candy, soda, and drugs . . .	101.0	91.9	89.2	94.7	95.1
Department and dry goods stores:					
"Chain" stores ³ . . .	109.5	105.1	92.6	100.6	100.9
Independent stores . . .	108.4	93.2	91.0	93.9	90.5
Fuel and ice . . .	111.1	102.1	102.1	106.3	94.0
Furniture and radios . . .	97.7	81.4	73.7	76.4	74.4
Groceries, provisions, meats and fish:					
"Chain" stores ³ . . .	99.7	96.2	93.8	98.2	98.8
Independent stores . . .	98.5	92.2	94.6	95.9	94.6
Lunch rooms and restaurants:					
"Chain" ³ . . .	101.3	98.0	98.3	107.2	102.3
Independently owned . . .	101.4	90.0	80.1	80.4	74.0
Wearing apparel and accessories . . .	105.7	92.1	91.4	96.2	99.0

MONTHLY INDEX NUMBERS OF EMPLOYMENT IN 1935 ¹
(Base, 100.0 = Average Number Employed in September, 1931)

TRADE GROUPS	Janu- ary	Febru- ary	March	April	May	June	July	August	Septem- ber	Octo- ber	Novem- ber	Decem- ber
Wholesale and Retail Trade . . .	85.9	84.9	84.6	85.8	86.0	85.5	83.1	81.3	84.1	85.9	86.3	96.8
<i>Wholesale Trade . . .</i>	<i>82.3</i>	<i>82.7</i>	<i>82.9</i>	<i>81.9</i>	<i>82.3</i>	<i>82.1</i>	<i>83.7</i>	<i>82.9</i>	<i>83.6</i>	<i>83.9</i>	<i>82.8</i>	<i>82.5</i>
Automobiles, accessories, gas and oil . . .	97.3	99.6	98.8	97.8	97.2	94.9	94.1	94.1	95.5	99.3	95.7	98.9
Groceries, provisions, meats, and fish . . .	84.2	84.5	84.9	83.6	84.4	84.1	86.8	86.0	86.1	85.8	84.3	84.8
<i>Retail Trade . . .</i>	<i>86.3</i>	<i>84.8</i>	<i>84.3</i>	<i>86.1</i>	<i>86.2</i>	<i>85.5</i>	<i>82.2</i>	<i>80.1</i>	<i>83.6</i>	<i>85.7</i>	<i>86.7</i>	<i>99.8</i>
Automobiles, accessories, gas and oil . . .	85.1	84.2	85.2	87.6	90.0	88.4	86.7	84.7	83.3	83.8	83.0	84.5
Candy, soda, and drugs . . .	94.0	95.0	94.2	95.1	94.9	94.5	91.5	93.9	94.7	94.6	96.5	101.8
Department and dry goods stores:												
"Chain" stores ³ . . .	97.9	92.5	96.8	96.8	100.4	98.7	94.0	90.9	96.7	99.2	105.9	141.0
Independent stores . . .	88.9	88.2	87.2	91.0	89.8	88.5	84.6	79.4	85.5	88.5	90.5	123.3
Fuel and ice . . .	111.8	114.0	97.2	90.9	87.5	87.2	87.4	85.0	90.4	93.5	89.6	93.6
Furniture and radios . . .	75.6	75.4	76.5	75.9	76.2	75.9	70.2	68.7	71.8	72.4	75.2	76.6
Groceries, provisions, meats and fish:												
"Chain" stores ³ . . .	101.8	100.3	99.1	98.1	97.5	97.4	97.6	96.8	97.9	97.3	99.6	102.6
Independent stores . . .	95.2	95.8	95.7	94.6	94.0	94.0	92.4	93.1	93.9	96.4	95.4	94.5
Lunch rooms and restaurants:												
"Chain" ³ . . .	106.2	104.9	106.8	106.8	102.3	96.5	98.9	99.5	99.1	102.6	102.3	101.2
Independently owned . . .	75.5	74.3	73.6	74.3	78.8	78.4	71.2	68.6	72.3	74.9	74.9	71.5
Wearing apparel and accessories . . .	95.7	92.3	93.4	103.4	101.1	100.4	91.0	88.2	95.7	101.9	100.7	123.6

¹ This monthly survey was first undertaken in September, 1931, and the average number employed in that month was taken as the base = 100.0.

² Average for four months, September to December, inclusive.

³ Five or more in each chain.

Table 9. — Index Number of Amounts Paid in Wages in Representative Establishments in Wholesale and Retail Trade in Massachusetts — All Trade Groups Combined and Eleven Leading Groups for the Years, 1932-1935, inclusive, and by Months in 1935

(Source: — Monthly Survey of Representative Establishments in Wholesale and Retail Trade)

TRADE GROUPS	ANNUAL INDEX NUMBERS OF AMOUNTS PAID IN WAGES ¹ (Base, 100.0 = Average Amounts Paid in Wages in September, 1931)				
	1931 ²	1932	1933	1934	1935
Wholesale and Retail Trade . . .	100.5	84.0	76.0	80.9	80.9
<i>Wholesale Trade . . .</i>	<i>96.3</i>	<i>79.4</i>	<i>71.6</i>	<i>75.1</i>	<i>75.6</i>
Automobiles, accessories, gas and oil . . .	99.1	94.0	74.4	81.5	88.2
Groceries, provisions, meats and fish . . .	97.3	81.4	76.7	80.4	79.6
<i>Retail Trade . . .</i>	<i>102.0</i>	<i>86.2</i>	<i>80.1</i>	<i>85.6</i>	<i>84.6</i>
Automobiles, accessories, gas and oil . . .	94.2	75.1	61.8	69.6	70.1
Candy, soda, and drugs . . .	103.0	84.1	74.3	77.4	79.4
Department and dry goods stores:					
"Chain" stores ³ . . .	107.9	88.8	76.9	82.3	82.7
Independent stores . . .	107.2	87.6	81.9	88.1	87.1
Fuel and ice . . .	109.4	91.4	85.4	88.8	78.8
Furniture and radios . . .	97.4	76.0	62.2	67.1	66.9
Groceries, provisions, meats and fish:					
"Chain" stores ³ . . .	99.3	90.7	87.3	93.2	94.3
Independent stores . . .	99.2	88.3	82.6	85.3	86.4
Lunch rooms and restaurants:					
"Chain" ³ . . .	103.1	91.6	85.6	89.4	88.9
Independently owned . . .	98.8	83.1	68.6	69.5	66.0
Wearing apparel and accessories . . .	104.2	85.7	76.3	83.8	85.9

MONTHLY INDEX NUMBERS OF AMOUNTS PAID IN WAGES IN 1935 ¹
(Base, 100.0 = Average Amounts Paid in Wages in September, 1931)

TRADE GROUPS	Janu- ary	Febru- ary	March	April	May	June	July	August	Septem- ber	Octo- ber	Novem- ber	Decem- ber
Wholesale and Retail Trade . . .	80.1	79.7	79.3	80.6	81.2	81.2	79.7	78.0	80.7	81.7	80.8	87.7
<i>Wholesale Trade . . .</i>	<i>73.3</i>	<i>74.6</i>	<i>74.9</i>	<i>74.5</i>	<i>75.8</i>	<i>75.6</i>	<i>77.0</i>	<i>76.1</i>	<i>76.9</i>	<i>77.0</i>	<i>75.5</i>	<i>75.7</i>
Automobiles, accessories, gas and oil . . .	82.9	84.5	88.0	88.3	87.9	86.1	89.0	87.8	89.3	93.5	87.5	93.5
Groceries, provisions, meats and fish . . .	77.8	79.8	79.1	78.0	80.4	79.2	81.5	80.8	81.4	79.9	79.1	78.0
<i>Retail Trade . . .</i>	<i>84.3</i>	<i>83.3</i>	<i>82.6</i>	<i>84.7</i>	<i>85.0</i>	<i>85.1</i>	<i>82.4</i>	<i>80.3</i>	<i>83.8</i>	<i>85.2</i>	<i>84.6</i>	<i>94.2</i>
Automobiles, accessories, gas and oil . . .	67.4	66.9	68.8	71.8	75.0	72.9	71.5	69.9	70.7	68.5	67.3	70.3
Candy, soda and drugs . . .	80.5	80.6	80.2	80.4	79.0	80.3	75.1	76.1	78.1	77.4	80.1	84.6
Department and dry goods stores:												
"Chain" stores ³ . . .	79.9	74.1	76.7	79.5	80.3	82.8	81.2	78.1	79.9	83.4	84.4	112.4
Independent stores . . .	86.4	83.4	84.1	87.0	86.7	85.6	82.1	77.8	88.0	87.2	87.7	108.9
Fuel and ice . . .	94.8	97.9	79.2	77.2	71.9	71.5	72.6	68.9	77.8	81.2	71.5	80.8
Furniture and radios . . .	66.1	66.0	69.8	67.9	69.3	69.2	63.2	61.2	64.6	70.1	66.3	68.9
Groceries, provisions, meats and fish:												
"Chain" stores ³ . . .	95.3	96.6	94.6	94.7	93.9	94.3	94.8	92.7	91.4	92.9	94.0	96.7
Independent stores . . .	86.2	86.5	86.3	85.4	85.3	86.3	84.8	86.0	86.2	88.7	87.5	87.9
Lunch rooms and restaurants:												
"Chain" ³ . . .	91.1	89.9	90.8	91.6	88.8	85.0	86.6	87.0	87.3	89.7	89.4	89.3
Independently owned . . .	65.1	64.4	64.0	66.2	67.7	68.3	62.2	62.7	66.7	68.9	69.0	67.1
Wearing apparel and accessories . . .	81.8	79.1	80.7	87.5	87.8	83.6	82.4	79.7	85.1	87.6	88.4	102.5

¹ This monthly survey was first undertaken in September, 1931, and the average amount paid in wages in that month was taken as the base = 100.0.

² Average for four months, September to December, inclusive.

³ Five or more in each chain.

Information in detail is not presented in this report, but two series of index numbers showing trends of employment and amount of wages paid for the principal trade groups for the years 1932 to 1935, inclusive, and by months in 1935, are here presented.¹ Because of unavoidable changes which occur in the list of reporting establishments the index numbers have been computed by the "link-relative" method, and in order that they may be directly comparable with index numbers for other classes of employment which were added to the monthly surveys in 1931, the returns for the month of September, 1931, have been taken as the base (100) in computing the index numbers.

A comparison of the index numbers of employment in Table 8 shows that in 1935 the index number representing employment in retail trade (85.9) was below the corresponding index numbers, 93.4 in 1934; 90.1 in 1933; and 92.9 in 1932. In wholesale trade employment showed little change during the four years, the index numbers being 82.8 in 1935; 84.6 in 1934; 81.6 in 1933; and 85.5 in 1932.

More marked fluctuations occur in employment in retail trade than in wholesale trade, largely because of seasonal conditions affecting retail sales, especially by department, dry goods, and wearing apparel stores. In 1935 the index numbers representing employment in wholesale trade fluctuated very little from month to month; the highest point reached was 83.9 in October and the lowest point was 81.9 in April. In retail trade, however, the fluctuations were large; the highest index number reached was 99.8 in December (due to Christmas sales, principally by department, dry goods, and wearing apparel stores), and the lowest was 80.1 in August. Marked fluctuations in the index numbers of employment in the retail sale of fuel and ice were due to seasonal demand for fuel during the fall and the winter.

Index numbers representing the amount of wages paid to employees in the various trade groups are presented in Table 9. In general, the fluctuations in the amount of wages paid in the principal trade groups corresponded closely with the fluctuations in the number of persons employed from month to month, except that when the regular force of employees was supplemented with additional employees for temporary sales, the increases in the amounts of wages paid were not proportionately as large as the increases in the numbers of persons employed, because salespeople employed temporarily usually work part time and do not receive as high rates of pay as those who are permanently employed.

Building Construction. — The collection of monthly pay roll data from building contractors was first undertaken by this Division in April, 1927. The information called for includes the following items: number of building tradesmen employed during the week including the 15th of the month; total number of hours worked; and the amount paid in wages. Reports were received each month in 1935 from about 680 building contractors who employed in June, the peak month, 6,512 building tradesmen. Nearly all of the important general contractors and subcontractors in the building industry are included in the list of those reporting each month. Pay roll data are furnished by individual projects or groups of projects within a single city or town, and the returns are presented in the monthly press announcements by classes of work done and also by principal cities and towns.

In Table 10 index numbers of employment and earnings of building tradesmen and of man-hours worked are presented for the years 1929 to 1935, inclusive, and by months in 1935.² The index numbers representing number of building tradesmen employed, number of man-hours worked, amount paid in wages, average weekly hours per man, and average weekly and hourly earnings per man in 1935, in each case, exceeded the corresponding index numbers in 1934 and 1933, but the increases were not large in any case. Based on data for 1928 taken as a base (100), the index numbers for the year 1935 were as follows: number of building tradesmen, 35.1; number of man-hours worked, 28.6; amount paid in wages, 22.8; average weekly hours per man, 80.6; average weekly earnings per man, 64.4; and hourly earnings per man, 80.1.

Marked seasonal fluctuations in the monthly index numbers were reported in 1935, as follows: number of building tradesmen employed — highest, 43.5 in June; lowest, 26.4 in February; number of man-hours worked — highest, 37.3 in

¹ See Tables 8 and 9, and also charts, pages 116 and 117, Plates 10 and 11.

² See also chart, page 118, Plate 12.

June; lowest, 19.1 in January; amount paid in wages — highest, 29.8 in June; and lowest, 15.9 in March.

Table 10. — Index Numbers of Employment and Earnings of Building Tradesmen in Massachusetts, for the Years, 1928–1935, inclusive, and by Months in 1935

(Source: Monthly Survey of Representative Building Contractors)

YEARS AND MONTHS	INDEX NUMBERS (Average for the Year, 1928 ¹ = Base, 100.0)					
	Number of Tradesmen	Number of Man-hours	Amount Paid in Wages	Average Weekly Hours per Man	Average Weekly Earnings per Man	Average Hourly Earnings per Man
1928 ¹ (Base)	100.0	100.0	100.0	100.0	100.0	100.0
1929	103.0	102.4	105.3	98.7	101.3	102.6
1930	94.6	92.7	97.2	97.9	102.8	105.0
1931	66.8	59.5	62.0	88.9	91.5	102.8
1932	41.2	32.1	29.2	77.8	70.4	90.6
1933	27.9	21.0	16.6	74.8	59.3	79.4
1934	31.4	25.0	19.9	79.5	63.4	79.8
1935	35.1	28.6	22.8	80.6	64.4	80.1
<i>1935</i>						
January	27.9	19.1	16.1	68.5	57.7	84.3
February	26.4	19.4	16.1	73.5	61.0	83.0
March	26.5	19.2	15.9	72.5	60.0	82.8
April	29.6	22.3	18.0	75.3	60.8	80.7
May	38.7	31.8	24.9	82.2	64.3	78.3
June	43.5	37.3	29.8	85.7	68.5	79.9
July	42.3	35.7	27.8	84.4	65.7	77.9
August	38.6	33.1	26.2	85.8	67.9	79.2
September	39.3	34.3	27.0	87.3	68.7	78.7
October	38.8	34.3	27.2	88.4	70.1	79.3
November	35.9	28.6	22.4	79.7	62.4	78.3
December	33.1	27.6	21.9	83.4	66.2	79.3

¹ This survey was first undertaken in April, 1927.

Highway Construction. — In 1931, the monthly surveys were extended to include highway construction. In 1935, reports were received each month from about 86 contractors who employed in October and November (the peak months) 3,000 workmen. The reports received cover approximately 90 per cent of the total number of workmen employed on all highway construction done under contract in Massachusetts during the year, exclusive of those projects paid for from federal funds.

Index numbers representing employment and amounts paid in wages to workmen employed on highway construction are presented in Table 11. The index numbers representing employment in 1935 were less than the corresponding index numbers for 1934, 1933 and 1932. In 1935 there were very marked fluctuations in the numbers of workmen employed on public highway work by private contractors, the index numbers having varied from the lowest point, 6.9, in March, to 63.2 in September, but there was relatively little fluctuation in employment of manual workers employed by city and town street, highway and public works departments.

Table 11. — *Index Numbers of Employment and of Amounts Paid in Wages on Highway Construction in Massachusetts for the Years, 1932 to 1935, inclusive, and by Months in 1935*

(Source — Monthly Survey of Highway Construction)

YEARS AND MONTH	INDEX NUMBERS (September, 1931 = 100.0)			
	Workmen Employed on Public Highway Work by Private Contractors	Manual Workers Employed by City and Town Street, Highway, and Public Works Departments ¹	Workmen Employed on Public Highway Work by Private Contractors	Manual Workers Employed by City and Town Street, Highway, and Public Works Departments ¹
EMPLOYMENT				
1932	41.9	75.2	47.1	65.8
1933	33.3	69.1	33.6	57.7
1934	36.1	70.7	37.3	59.0
1935	27.3	64.3	33.3	60.4
1935				
January	9.3	68.8	9.7	61.5
February	8.1	69.1	8.5	60.8
March	6.9	57.2	7.0	54.3
April	23.0	60.2	23.1	55.4
May	26.5	63.2	29.8	59.7
June	27.3	63.7	31.6	60.4
July	25.5	65.2	27.7	63.5
August	46.6	66.2	61.2	63.5
September	63.2	64.9	103.6	61.8
October	35.1	68.3	42.4	64.8
November	31.2	65.0	36.3	60.1
December	24.6	59.7	18.3	59.1

¹ In connection with the monthly survey of municipal employment, pay-roll data were obtained covering manual workers employed in the street, highway and public works departments in nearly 100 of the principal municipalities in Massachusetts. These index numbers (appearing also in Table 12) are here presented for purposes of comparison with corresponding index numbers representing employment and earnings of workmen employed on public highway work by private contractors.

Public Utilities. — The monthly survey of employment by public utility companies was first undertaken in January, 1929. During the past two years the lists of companies reporting have been nearly identical, and changes were principally in the nature of mergers or consolidations which reduced the number of companies without changing the coverage. All employees, both manual and clerical (except salaried executives), on the pay rolls of the companies in Massachusetts are included in the reports.

In December, 1935, reports were received from 123 companies which together employed a total of 45,783 wage-earners. These 123 companies comprised six steam railroads, nine street and electric railways; 30 passenger bus companies, and 78 gas and electric companies. Three of the six steam railroads are engaged in interstate transportation, and each of these three furnishes pay roll data covering its operations within Massachusetts only. The street and electric railways which no longer operate street cars are now included under the passenger bus group. Several of the street railways now operate both street cars and busses, but it is not possible to make a further segregation of the pay rolls on this basis.

Two series of index numbers are presented in Table 12, one of which relates to employment and the other to total amounts paid in wages to employees in each of the four classes of public utility companies. The trends of employment during the five years 1930-1935, inclusive, for each of these four classes of utilities are shown, graphically, in a chart ¹ which appears in the appendix to this report.

Although there was a slight decrease in the annual index numbers representing employment in all classes of public utilities, from 80.3 in 1934 to 78.9 in 1935, there was a small increase in the index numbers representing amounts paid in wages, from 70.4 in 1934 to 73.5 in 1935. In each of the four classes of public utilities there were increases in 1935 as compared with 1934 in the index numbers representing amounts paid in wages as follows: steam railroads, from 63.0 to 66.4; street and electric railways, from 70.8 to 72.5; passenger bus companies, from 94.5 to 104.1; and gas and electric companies, from 80.5 to 83.2.

The only increases in employment in 1935 occurred in the passenger bus company group, in which case the index number for the year increased from 118.6 in 1934 to 125.4 in 1935.

¹ See Chart, page 119, Plate 14.

Table 12. — *Index Numbers of Employment and of Amounts Paid in Wages by Public Utility Companies in Massachusetts for the Years, 1930 to 1935, inclusive, and by Months in 1935*

(Source: Monthly Survey of Public Utilities Companies)

YEARS AND MONTHS	INDEX NUMBERS (Average for the Year, 1930 = 100.0)				
	All Classes Combined	Steam Railroads	Street and Electric Railways	Passenger Bus Companies	Gas and Electric Companies
EMPLOYMENT					
1930 (Base)	100.0	100.0	100.0	100.0	100.0
1931	91.4	86.5	96.7	100.4 ¹	96.1
1932	81.6	74.4	90.2	95.5	88.5
1933	77.6	71.5	81.2	101.2	85.2
1934	80.3	74.2	80.5	118.6	88.7
1935	78.9	71.1	79.2	125.4	89.3
1935					
January	78.4	70.9	80.0	115.8	88.1
February	78.5	71.2	78.8	117.5	88.7
March	77.7	70.3	78.1	117.9	87.8
April	77.9	70.3	78.7	119.8	87.9
May	78.6	70.9	78.9	125.8	88.7
June	79.3	71.6	79.5	126.0	89.6
July	79.4	71.1	80.2	129.7	90.1
August	79.0	70.3	79.7	132.2	90.4
September	79.3	71.1	79.7	131.7	90.0
October	80.0	72.1	79.7	131.5	90.5
November	79.5	71.6	79.3	130.4	90.0
December	79.2	71.9	77.9	126.9	89.8
AMOUNTS PAID IN WAGES					
1930 (Base)	100.0	100.0	100.0	100.0	100.0
1931	89.5	83.7	95.3	99.2 ¹	94.4
1932	73.7	63.4	83.6	85.3	82.8
1933	66.1	58.9	69.3	85.1	74.5
1934	70.4	63.0	70.8	94.5	80.5
1935	73.5	66.4	72.5	104.1	83.2
1935					
January	72.2	65.1	73.3	94.6	80.9
February	72.4	65.3	72.6	97.4	81.6
March	70.2	62.0	70.8	97.7	80.6
April	72.1	65.4	70.3	99.5	82.0
May	73.3	66.6	71.5	104.0	82.8
June	74.2	67.6	72.4	103.1	83.7
July	75.0	66.9	74.2	109.1	85.8
August	74.4	66.1	73.6	113.0	85.2
September	74.2	67.3	72.4	111.0	83.6
October	73.9	66.0	73.0	108.8	84.6
November	74.7	67.9	73.2	106.3	84.3
December	75.5	70.2	72.9	105.0	83.8

¹ Passenger bus companies were first canvassed in April, 1931. In computing index numbers for these companies the same index numbers as those for street railway companies were taken as the initial index numbers of this series (as of April, 1931) and thereafter the index numbers were separately computed.

Municipal Employment. — Reports relative to employment by municipalities in the Commonwealth have been collected each month, beginning with April, 1931. These reports cover mechanics, workmen, laborers, clerical, and other municipal employees who receive their pay weekly, in accordance with General Laws, Chapter 149, Section 148. Each city or town reporting furnishes information by departments. In order to show the marked seasonal tendencies in connection with road and highway construction work by municipalities, the pay rolls for manual workers in the various departments coming under this general classification are tabulated separately from the pay rolls for workers in other departments. Pay roll data relative to police, fire, and school departments, and hospitals maintained from public funds are not included in this survey.

During 1935 reports were received each month from nearly 100 municipalities in which reside over 80 per cent of the population of the State. The reports cover over 20,000 employees each month, and the maximum number was 24,176 in August. In those towns from which no reports are obtained there is a comparatively small number of municipal employees, and their inclusion would not add sufficiently to the value of the survey to warrant their being canvassed each month.

Two series of Index numbers are presented in Table 13, one of which relates to

employment of municipal employees and the other to the total amount paid them in wages for one week in each month, beginning with September, 1931, the returns for which month have been taken as the base (100) in computing the index numbers. A chart, showing the trends of employment and of amounts paid in wages, appears in the appendix.¹

For manual workers (all departments) there was a decrease in the annual index numbers representing employment in 1935 as compared with 1934, from 76.4 to 69.6, but for clerical and other non-manual employees (paid weekly) there was an increase from 108.3 to 115.3. There were increases in the index numbers representing amounts paid in wages in both classes — for manual workers (all departments), from 64.9 in 1934 to 65.3 in 1935, and for clerical and other non-manual employees (paid weekly), from 102.8 in 1934 to 116.9 in 1935. In 1935 there was comparatively little seasonal fluctuation in employment in any of the classes of municipal employment specified, except in the employment of manual workers in street, highway and public works departments in the month of March, when the index number fell to 57.2 as compared with 69.1 in February, the maximum for the year, in which month large numbers of temporary workmen were employed on snow and ice removal.

Table 13. — Index Numbers of Employment and of Amounts Paid in Wages in Municipal Employment in Massachusetts: By Specified Classes of Employment for the Years, 1932 to 1935, inclusive, and by Months in 1935

(Source — Monthly Survey of Municipal Employment)

YEARS AND MONTHS	INDEX NUMBERS ² (Base — September, 1931 = 100)				
	MANUAL WORKERS			Clerical and Other Non-Manual Employees Paid Weekly	Total — All Classes Specified
	Street, Highway and Public Works Departments	Other Departments	Total — All Departments		
EMPLOYMENT					
1931, September (Base)	100.0	100.0	100.0	100.0	100.0
1932	75.2	108.1	86.5	100.7	88.6
1933	69.1	94.0	77.7	104.4	81.5
1934	70.7	87.3	76.4	108.3	80.9
1935	64.3	79.9	69.6	115.3	75.9
1935					
January	68.8	80.4	72.6	114.7	78.5
February	69.1	75.3	70.9	117.5	77.4
March	57.2	74.7	63.3	113.8	70.4
April	60.2	79.4	66.9	114.3	73.6
May	63.2	83.8	70.4	114.4	76.5
June	63.7	84.7	71.1	115.5	77.2
July	65.2	88.1	73.3	117.1	79.2
August	66.2	87.6	73.7	115.4	79.2
September	64.9	83.0	71.2	112.7	76.7
October	68.3	79.1	71.7	118.9	78.2
November	65.0	75.0	68.1	115.5	74.8
December	59.7	67.4	62.0	113.6	69.5
AMOUNTS PAID IN WAGES					
1931, September (Base)	100.0	100.0	100.0	100.0	100.0
1932	70.8	89.1	77.1	101.8	80.9
1933	57.7	76.5	64.2	99.7	69.5
1934	59.0	75.2	64.9	102.8	70.6
1935	60.4	74.3	65.3	116.9	72.8
1935					
January	61.5	72.6	65.4	116.0	72.8
February	60.8	70.2	64.1	119.1	72.1
March	54.3	69.9	59.9	114.8	67.9
April	55.4	72.7	61.6	115.5	69.5
May	59.7	77.5	66.1	114.4	73.1
June	60.4	77.5	66.5	118.2	74.1
July	63.5	81.8	70.1	118.8	77.2
August	63.5	81.2	69.9	117.5	76.8
September	61.8	76.8	67.1	115.5	74.0
October	64.8	73.6	67.7	120.3	75.3
November	60.1	70.1	63.5	116.3	71.2
December	59.1	67.5	61.9	115.8	69.8

¹ See chart on page 120, Plate 15.

² This survey was first undertaken in April, 1931.

Agriculture. — The number of persons employed in agriculture in Massachusetts constitutes only slightly over three per cent of the total number of persons gainfully employed in all industries in the State; nevertheless, an endeavor has been made to secure monthly reports from a representative list of employers of agricultural labor. The number of farms, market gardens, dairies, etc., in connection with which three or more persons are employed, is very small, and it is not feasible to attempt to secure a large number of reports each month from one-man or two-man farms. During the past year the number of employers of agricultural labor reporting was increased from 99 in January to 137 in December, which number included the following: fruit growers, 45; nurseries, wholesale florists and landscape gardeners, 34; dairy and stock farms, 31; farms and market gardens, 21; and cranberry growers, 6. The total number of wage-earners covered by the reports in December was 1,343, and the amount paid in wages was \$24,108 during the week including December 15.

The collection of employment and pay-roll data from employers of agriculture was first undertaken by the Division in September, 1931. For all branches of agricultural labor, combined, the index number representing employment in 1935 was 56.3, based on the number employed in September, 1931, taken as 100. During the year there were the usual seasonal fluctuations in employment, and the index numbers ranged from the lowest, 33.6 in February, to 97.9 in September. The index number representing the amount paid in wages in 1935 was 31.1, and the corresponding monthly index numbers in 1935 ranged from the lowest, 22.1 in January, to 42.6 in October.

In Table 14 index numbers, representing employment and amounts paid in wages, are presented by months during the period September, 1931, to December, 1935, inclusive. On reference to the index numbers, it will be observed that marked seasonal fluctuations in numbers of persons employed and the amounts paid in wages occurred each year, with employment at the lowest point during the winter months. These seasonal fluctuations result from a combination of factors. Thus, in each of the four principal classes of agricultural employment, additional help is employed during the spring months, more particularly at the nurseries and by wholesale florists and landscape gardeners. On the dairies and stock farms and market gardens, additional help is employed mostly during the summer months. In cranberry growing, after the preparatory work in the spring, few temporary laborers are employed, but as soon as the crop is ready for picking, large numbers of men and women are employed in picking, sorting and packing. In fruit growing, some additional help is employed in the spring in spraying, and again in the fall in picking and packing the fruit.

Table 14. — Index Numbers of Employment and of Amounts Paid in Wages in Employment of Agricultural Labor in Massachusetts, September, 1931, to December, 1935, inclusive, by Months

(Source — Monthly Survey of Employment of Agricultural Labor)

MONTHS	INDEX NUMBERS ¹ (September, 1931 = Base 100.0)				
	1931	1932	1933	1934	1935
EMPLOYMENT					
January	—	38.1	33.8	32.7	34.6
February	—	36.2	32.8	33.1	33.6
March	—	38.3	34.1	35.0	35.0
April	—	61.5	53.8	55.0	54.7
May	—	82.2	67.3	66.8	64.6
June	—	74.1	68.8	69.8	70.5
July	—	74.9	65.8	75.5	70.8
August	—	71.5	64.4	63.9	65.2
September	100.0 ¹	119.1	84.3	91.4	97.9
October	83.1	110.9	92.7	74.0	64.5
November	57.3	62.8	56.1	55.1	46.6
December	49.2	49.7	42.6	39.8	37.8
<i>Average for the Year</i>	—	68.3	58.0	57.7	56.3

¹ This survey was first undertaken in September, 1931. In computing index numbers the data for this month were taken as the base = 100.0.

MONTHS	INDEX NUMBERS ¹ (September, 1931 = Base 100.0)				
	1931	1932	1933	1934	1935
	AMOUNTS PAID IN WAGES				
January	—	37.3	26.2	21.3	22.1
February	—	34.8	25.1	21.4	22.2
March	—	35.9	24.4	22.6	22.9
April	—	48.2	35.7	32.2	31.6
May	—	58.7	44.8	38.2	38.3
June	—	51.4	44.8	38.5	37.9
July	—	49.0	41.5	39.3	37.2
August	—	46.5	40.5	34.7	35.2
September	100.0 ¹	54.6	46.8	42.3	42.6
October	81.5	56.7	55.7	37.9	33.8
November	62.2	39.9	37.7	31.5	26.3
December	55.4	34.6	25.0	25.0	23.0
Average for the Year	—	45.6	37.4	32.1	31.1

¹ This survey was first undertaken in September, 1931. In computing index numbers the data for this month were taken as the base = 100.0.

Office and Miscellaneous Classes of Employment. — In order that the monthly surveys might be more fully representative of all important classes of employment in the State, a number of somewhat unrelated classes, not previously canvassed, were added to the list in 1931. In December, 1935, returns were received from 679 employers, representing 873 companies or establishments in which 36,805 wage-earners were employed. Under this general heading the returns have been classified under six major groups, and 12 sub-groups or classes of employment.

The group, "amusement and recreation," includes clubs and associations, and theatres. Under "hotel employment" the data are presented separately for hotels (as such) and for the hotel restaurants when operated as independent units. "Institutional employment" includes employment in hospitals and in schools and colleges, and includes office staff, and buildings and grounds employees, but does not include professional or semi-professional employees in hospitals or the teaching staff in schools and colleges. "Office employment" includes clerical employees in banks and trust companies, and in insurance companies and agencies, but does not include officials, managerial staff or insurance agents. "Personal service" includes employment in dyeing and cleansing establishments and in laundries. "Trucking and handling" includes employees of express and transfer companies which operate over stated routes and maintain regular services principally in carrying small shipments, and employees of companies which are engaged in teaming, trucking and handling material in large quantities, and in stevedoring.

Index numbers representing employment and amounts paid in wages for each of the 12 classes of employment are presented in Table 14. In computing these index numbers, the data for September, 1931, were taken as the base (100).

In six of the twelve classes of employment specified in Table 14, the index numbers representing employment and amounts paid in wages in 1935 exceeded the corresponding index numbers in 1934, as follows: hospitals (not including professional or semi-professional employees); insurance companies and agencies; dyers and cleansers; express and transfer companies; and teaming and handling. The only class showing any large decrease was hotel restaurant employment.

The principal seasonal decreases in employment in 1935 in these several classes of employment occurred during the summer in clubs and associations, theatres, hotel restaurants, schools and colleges (not including teaching staff), express and transfer work and trucking and handling, and in November and December, in dyeing and cleansing establishments. The only large seasonal increases in employment occurred in express and transfer work in December (as a result of Christmas trade), and in teaming and trucking in February on account of snow and ice removal. (See chart 26, page 121, Plate 16.)

Table 15—Index Numbers of Employment and Amounts Paid in Wages in Twelve Miscellaneous Classes of Employment in Massachusetts for the Years, 1932 to 1935, inclusive, and by Months in 1935
(Source: — Monthly Survey of Employment in Miscellaneous Classes of Employment.)

YEARS AND MONTHS	IN INDEX NUMBERS (Base — September, 1931 = 100.0)												
	AMUSEMENT AND RECREATION			HOTEL EMPLOYMENT		INSTITUTIONAL EMPLOYMENT		OFFICE EMPLOYMENT		PERSONAL SERVICE		TRUCKING AND HANDLING	
	Clubs and Associations	Theatres	Hotels	Hotel Restaurants	Hospitals	Schools and Colleges	Banks and Trust Companies	Insurance Companies and Agencies	Dyers and Cleaners	Laundries	Express and Transfer Companies	Teaming and Trucking	
1932	97.1	72.9	92.1	88.2	99.3	96.8	93.6	99.8	88.8 ²	95.6	79.4	83.1	
1933	88.9	49.2	77.8	79.3	97.9	82.4	87.1	100.4	80.3	93.9	98.1	83.6	
1934	86.7	50.9	72.4	94.6	99.4	77.5	86.8	105.3	82.4	93.4	107.5	84.2	
1935	79.7	46.7	73.0	73.9	99.5	73.9	87.1	107.9	87.7	92.1	113.8	85.2	
1935					EMPLOYMENT								
January	82.5	52.3	71.3	80.8	98.3	74.3	86.4	108.5	76.9	91.3	109.6	86.7	
February	83.3	53.2	70.6	81.0	98.5	74.9	86.4	108.6	73.9	90.8	115.1	98.6	
March	83.1	51.5	69.8	75.2	98.9	74.5	86.5	108.6	77.2	90.1	112.8	90.6	
April	82.7	49.8	70.4	75.8	98.7	75.4	86.4	108.7	87.8	90.3	115.4	82.6	
May	83.1	46.5	71.6	76.8	100.9	77.5	86.4	107.4	91.4	91.0	113.8	83.9	
June	73.7	42.7	69.7	68.3	99.7	72.1	86.7	107.5	100.8	92.5	114.5	83.6	
July	72.2	39.9	79.7	65.2	102.9	61.1	88.2	107.4	96.0	94.4	104.7	78.2	
August	73.5	41.2	73.2	64.2	100.9	52.7	88.8	106.9	93.2	93.5	100.1	80.6	
September	76.0	42.6	76.1	68.5	95.6	68.4	87.0	106.7	97.7	93.5	109.9	82.9	
October	79.1	46.8	77.0	70.0	99.8	83.4	86.9	107.8	93.5	94.2	117.7	84.3	
November	82.5	45.9	72.1	76.2	98.9	86.0	87.1	108.0	86.5	91.8	114.3	83.7	
December	85.2	48.5	73.1	77.3	100.9	86.7	88.0	108.3	77.4	91.7	137.4	86.2	
1932	93.1	75.7	89.1	79.8	98.4	76.3	89.5	99.7	77.0 ²	87.2	69.0	76.9	
1933	78.8	48.5	70.2	62.5	95.1	57.7	81.2	102.6	66.2	78.6	79.8	77.4	
1934	78.0	49.8	76.8	84.9	102.1	54.5	81.0	106.9	78.9	81.3	85.0	85.8	
1935	74.0	47.5	82.3	78.6	108.4	53.2	82.6	111.5	80.7	79.7	93.7	93.3	
1935					AMOUNTS PAID IN WAGES								
January	75.6	51.9	81.1	85.3	105.3	52.3	81.6	110.0	70.4	78.1	88.2	94.4	
February	75.1	54.0	81.2	85.1	106.0	52.6	81.5	110.3	67.0	77.7	94.8	103.6	
March	75.3	52.8	79.3	78.4	107.0	52.5	81.9	110.6	71.4	77.6	93.5	92.2	
April	76.3	50.8	80.4	80.4	107.3	53.8	81.8	111.4	84.8	78.6	96.6	85.7	
May	75.4	45.5	81.2	80.6	109.6	56.5	81.9	110.6	86.8	79.3	93.2	91.8	
June	70.0	43.7	78.9	75.7	109.7	51.8	81.7	111.3	94.0	80.8	95.1	94.1	
July	67.2	41.5	86.8	71.8	112.6	46.7	83.2	112.9	90.0	82.7	89.0	86.9	
August	69.6	42.8	84.8	69.2	111.2	43.3	85.4	113.1	84.4	81.3	88.1	89.4	
September	72.7	43.8	86.0	74.7	107.8	50.9	84.1	111.2	90.1	81.2	89.8	92.9	
October	73.4	47.5	83.1	81.3	108.0	58.9	82.9	111.4	84.5	80.2	92.6	95.6	
November	77.4	46.9	81.9	78.7	107.5	59.4	82.4	112.4	75.7	78.7	87.7	94.0	
December	79.5	49.3	83.8	81.5	108.8	59.2	83.2	113.1	68.8	79.6	115.9	98.5	

¹ See Tables 7 and 8 for index numbers for lunch rooms and restaurants not in hotels.

² The survey of dyers and cleaners was first undertaken in May, 1932. In computing the series of index numbers, the level of employment in May, 1932, was assumed to be the same as for laundries. The average shown for 1932 is for the eight months, May to December, inclusive.

Building Statistics. — The collection of records of building permits granted in municipalities in Massachusetts was first undertaken in 1919, and quarterly reports were then received from 36 cities. The number of municipalities reporting has since been increased to 55 (including all of the 39 cities and 16 of the larger towns), and the information has been collected monthly so that data are available, by months, for each of the years 1927 to 1935, inclusive.¹ The reports cover approximately 90 per cent of the building operations in the State, exclusive of State and Federal buildings, permits for which are not included in the records of most of the municipalities.

The questionnaire used in collecting this information calls for the number of applications filed for permits to build; the estimated cost of the work, classified by types of structure and intended use; and the number of family accommodations to be provided, classified by classes of residence. Mimeographed summaries of the returns are issued each month immediately following the month to which the statistics relate, giving the respective totals for each of the cities, and an annual summary, similar in form, is also prepared.

In 1935 the estimated cost of all work planned was fairly evenly divided between the three classes of projects, as shown by the following tabulation:

Classes of Structures	Number of Buildings	Estimated Value	Percentage of Total
New residential building	1,800	\$10,893,651	29.6
New non-residential building	3,978	12,854,240	34.9
Additions, alterations, and repairs	16,362	13,036,665	35.5
Totals	22,140	\$36,784,556	100.0

The 1,800 new residential buildings included as the major item 1,688 one-family dwellings to cost \$10,163,917, or 93.3 per cent of the total value (\$10,893,651) represented by this class of work. The principal item under new non-residential buildings included 17 grade and high schools to cost \$4,448,045; the items next in importance were 66 amusement and recreation places to cost \$1,174,637, and nine institutional buildings to cost \$1,125,454. These items together represented 52.5 per cent of the total new non-residential structures planned (\$12,854,240). Additions, alterations, and repairs planned to cost \$13,036,665 included changes being made on five school buildings at a total cost of \$1,208,000.

In Table 16 data are presented in summary form, showing complete returns for 55 municipalities, combined, for the year 1935, giving the numbers and cost of the different classes of structures. The data for new residential buildings are classified in four groups, namely, — one-family, two-family, multi-family dwellings, and buildings which combine stores and dwellings. The numbers of family accommodations provided in each of these four classes and in camps, and non-housekeeping dwellings, such as lodging houses and dormitories, are also shown. The data for new non-residential buildings are classified so as to show, separately, the facts for each of 14 important classes of structures. For additions, alterations, and repairs the totals only are presented.

¹ See chart, page 118, Plate 13.

Table 16. — Summary of Prospective Building in 55 Municipalities in Massachusetts during the Year 1935: By Classes of Structures

1 — New Residential Buildings			
CLASSES OF STRUCTURES	Number of Buildings	Estimated Cost	Number of Family Accommodations
Housekeeping dwellings:			
One-family	1,688	\$10,163,917	1,688
Two-family	39	249,400	78
One-family and two-family dwellings with stores or shops therewith	9	47,200	9
Multi-family (three or more families)	3	49,000	20
Multi-family dwellings with stores or shops therewith	1	8,000	5
Camps	56	32,259	—
Non-housekeeping dwellings	4	343,875	—
<i>Totals — New residential buildings</i>	<i>1,800</i>	<i>\$10,893,651</i>	<i>1,800</i>
2 — New Non-residential Buildings, and Additions, Alterations, and Repairs			
CLASSES OF STRUCTURES	Number of Buildings	Estimated Cost	Rank on Basis of Cost
Amusement and recreation places (including club buildings without bedrooms)	66	\$1,174,637	2
Churches, chapels, and parish houses	17	458,000	10
Factories, bakeries, ice-plants, greenhouses, laundries, and other workshops	99	824,410	6
Garages, public	38	278,477	12
Garages, private	2,456	953,633	4
Gasoline and service stations	160	469,875	9
Institutional buildings	9	1,125,454	3
Office buildings, including banks	39	601,095	8
Public buildings, including libraries and museums	8	302,969	11
Public works and utilities	21	210,104	14
Schools, grade and high (public and private)	17	4,448,045	1
Sheds, poultry houses, and other minor outbuildings	750	243,860	13
Storage warehouses, coal pockets, lumber sheds, etc.	104	811,429	7
Stores, restaurants, and other mercantile buildings	142	848,565	5
All other non-residential buildings	52	103,687	15
<i>Totals — New non-residential buildings</i>	<i>3,978</i>	<i>\$12,854,240</i>	<i>—</i>
<i>Additions, alterations, and repairs</i>	<i>16,362</i>	<i>\$13,036,665</i>	<i>—</i>

A comparison of the principal data relative to cost of work for which permits were granted in each of the municipalities in which the value of the work planned exceeded \$500,000 in 1935 appears in Table 17. Boston far outranked all of the other cities specified in the total estimated cost of construction for which permits were granted in 1935, and the cities in which the amounts exceeded \$1,000,000 were: Boston, \$10,760,436; Newton, \$2,590,886; Worcester, \$1,939,583; Brookline, \$1,629,055; Wellesley, \$1,263,030; and Fitchburg, \$1,097,563.

On the basis of estimated cost of new residential buildings in 1935, the leading cities were: Newton, \$2,217,700; Wellesley, \$1,088,850; Brookline, \$1,050,300; Belmont, \$847,350; Boston, \$727,300; Milton, \$594,550 and Worcester, \$479,285. Boston led all of the other cities specified in value of non-residential buildings for which permits to build were granted in 1935, and the cities leading in this respect were: Boston, \$4,643,926; Fitchburg, \$951,965; Worcester, \$889,419; Chelsea, \$683,575; Newburyport, \$515,800; and Salem, \$469,495. In several instances a considerable part of the estimated cost of non-residential construction planned was on account of one or two important projects. The cities leading in the value of additions, alterations and repairs were: Boston, \$5,389,210; Cambridge, \$571,906; and Worcester, \$570,879.

Table 17. — *Estimated Cost of Building Construction in 18 Leading Municipalities in 1935: By Classes of Work*

CITIES	Residential	Non-residential	Additions, Alterations, and Repairs	Total
Arlington . . .	\$381,460	\$128,227	\$121,575	\$631,262
Belmont . . .	847,350	82,095	45,652	975,097
Boston . . .	727,300	4,643,926	5,389,210	10,760,436
Brookline . . .	1,050,300	218,710	360,045	1,629,055
Cambridge . . .	73,000	200,435	571,906	845,341
Chelsea . . .	4,100	683,575	133,257	820,932
Fitchburg . . .	31,900	951,965	113,698	1,097,563
Lynn . . .	58,075	353,567	384,150	795,792
Milton . . .	594,550	112,640	161,747	868,937
Needham . . .	415,800	30,875	58,175	504,850
Newburyport . . .	19,500	515,800	50,100	585,400
Newton . . .	2,217,700	70,155	303,031	2,590,886
Northampton . . .	359,050	89,763	130,050	578,863
Quincy . . .	146,300	146,837	261,074	554,211
Salem . . .	52,000	469,495	308,943	830,438
Springfield . . .	129,450	141,119	307,736	578,305
Wellesley . . .	1,088,850	119,550	54,630	1,263,030
Worcester . . .	479,285	889,419	570,879	1,939,583

In Table 18 summary data are presented, showing, by classes of projects, the number and estimated cost of new residential buildings, new non-residential buildings, and additions, alterations and repairs, for which permits were granted, during each of the years, 1927 to 1935, inclusive, and by months in 1935.

The total number of permits granted in 1935 for all classes of projects was 22,140, as compared with 44,315 in 1927, a decrease of 50.0 per cent. This decrease was due principally to reductions in the number of permits granted for the construction of new residential buildings from 11,418 in 1927 to 1,800 in 1935, or 84.2 per cent, and in the number of new non-residential buildings, from 14,231 in 1927 to 3,978 in 1935, or 72.0 per cent. There was a decrease in the number of permits granted for additions, alterations and repairs, from 18,666 in 1927 to 16,362 in 1935, or only 12.3 per cent.

The estimated value of the work for which permits were granted for all classes of projects decreased from \$181,299,436 in 1927 to \$36,784,556 in 1935, or 79.7 per cent. For the three classes of work, there were decreases, as follows: new residential buildings, from \$101,959,226 in 1927 to \$10,893,651 in 1935, or 89.3 per cent; new non-residential, from \$51,765,595 in 1927 to \$12,854,240 in 1935, or 75.2 per cent; and additions, alterations and repairs, from \$27,574,615 in 1927 to \$13,036,665 in 1935, or 52.3 per cent.

Table 18. — *Number and Estimated Cost of Building in 55 Municipalities in Massachusetts, for Each of the Years, 1927-1935, inclusive, and by Months in 1935: By Classes of Projects*¹

YEARS AND MONTHS	NEW RESIDENTIAL BUILDING	NEW NON- RESIDENTIAL BUILDING	ADDITIONS, ALTERATIONS AND REPAIRS	TOTALS — ALL CLASSES OF PROJECTS
Number of Buildings				
1927	11,418	14,231	18,666	44,315
1928	10,580	12,967	17,184	40,731
1929	6,759	12,039	17,607	36,405
1930	4,931	9,615	16,417	30,963
1931	4,587	8,392	16,210	29,189
1932	1,806	5,134	14,115	21,055
1933	1,786	4,188	13,495	19,469
1934	1,314	3,800	14,254	19,368
1935	1,800	3,978	16,362	22,140
Number of Buildings in 1935: By Months				
January	48	63	587	698
February	20	61	615	696
March	101	204	1,167	1,472
April	147	345	1,557	2,049
May	176	434	1,812	2,422
June	187	400	1,600	2,187
July	206	374	1,706	2,286
August	194	392	1,683	2,269
September	158	428	1,611	2,197
October	203	541	1,834	2,578
November	208	443	1,264	1,915
December	152	293	926	1,371
<i>Totals, 1935</i>	<i>1,800</i>	<i>3,978</i>	<i>16,362</i>	<i>22,140</i>
Estimated Cost				
1927	\$101,959,226	\$51,765,595	\$27,574,615	\$181,299,436
1928	96,878,609	52,047,563	22,122,372	171,048,544
1929	69,936,017	53,945,280	29,774,203	153,655,500
1930	40,146,313	45,173,157	22,033,838	107,353,308
1931	32,956,935	38,495,601	14,240,473	85,693,009
1932	9,797,266	11,800,136	10,771,930	32,369,332
1933	9,513,475	5,646,159	9,859,614	25,019,248
1934	7,399,030	10,367,863	11,937,370	29,704,263
1935	10,893,651	12,854,240	13,036,665	36,784,556
Estimated Cost in 1935: By Months				
January	\$299,925	\$157,530	\$641,005	\$1,098,460
February	154,200	563,640	645,588	1,363,428
March	647,800	255,350	896,734	1,799,884
April	795,690	1,645,424	1,164,298	3,605,412
May	989,009	1,500,993	892,372	3,382,374
June	1,453,715	1,031,556	1,296,509	3,786,780
July	1,018,870	555,098	1,290,514	2,864,482
August	1,235,612	1,283,968	1,096,442	3,616,022
September	878,300	519,640	778,895	2,176,835
October	1,075,225	767,721	1,310,066	3,153,012
November	1,276,755	2,398,540	1,280,370	4,955,665
December	1,063,550	2,174,780	1,743,872	4,982,202
<i>Totals, 1935</i>	<i>\$10,893,651</i>	<i>\$12,854,240</i>	<i>\$13,036,665</i>	<i>\$36,784,556</i>

¹ This survey was first undertaken in 1919.

The total number of permits granted for all classes of projects, combined, was greater in 1935 than in 1934 by 2,772, or 14.3 per cent, and the estimated cost was greater in 1935 than in 1934 by \$7,080,293, or 23.8 per cent. For the three classes of projects the percentage increases in 1935 over 1934 were as follows: new residential buildings, number of permits, 37.0 per cent, estimated cost, 47.2 per cent; new non-residential buildings, number of permits, 4.7 per cent, estimated cost, 24.0 per cent; and additions, alterations, and repairs, number of permits, 14.8 per cent, and estimated cost, 9.2 per cent. The increase of \$7,080,293 in the estimated cost of all classes of projects, combined, in 1935 over 1934 was due to increases of \$3,494,621 in the cost of new residential buildings, \$2,486,377 in the cost of new non-residential buildings, and \$1,099,295 in the cost of additions, alterations and repairs.

Table 19. — *Index Numbers of Value Represented by Permits to Build in 55 Municipalities in Massachusetts, for the Years 1927–1935, inclusive, and by Months in 1935: By Classes of Projects*

YEARS AND MONTHS	INDEX NUMBERS (Base, 100.0 = Estimated Value in 1927)			
	New Residential Building	New Non- residential Building	Additions, Alterations, and Repairs	Totals — All Classes of Projects
1927 (Base)	100.0	100.0	100.0	100.0
1928	95.0	100.5	80.2	94.3
1929	68.6	104.2	108.0	84.8
1930	39.4	87.3	79.9	59.2
1931	32.3	74.4	51.6	47.3
1932	9.6	22.8	39.1	17.9
1933	9.3	10.9	35.8	13.8
1934	7.3	20.0	43.3	16.4
1935	10.7	24.8	47.3	20.3
1935				
January	3.5	3.7	27.9	7.3
February	1.8	13.1	28.1	9.0
March	7.6	5.9	39.0	11.9
April	9.4	38.1	50.7	23.9
May	11.6	34.8	38.8	22.4
June	17.2	23.9	56.4	25.1
July	12.0	12.9	56.2	19.0
August	14.5	29.8	47.7	23.9
September	10.3	12.0	33.9	14.4
October	12.7	17.8	57.0	20.9
November	15.0	55.6	55.7	32.8
December	12.5	50.4	75.9	33.0

Index numbers representing estimated cost of construction for which permits were granted during the years 1927 to 1935, inclusive, and during each of the months in 1935, by classes of projects, are presented in Table 19. These index numbers were computed using the estimated cost in 1927 as the base (100). For all classes of projects, combined, there were successive decreases during each of the years 1928 to 1933, inclusive, and the lowest point (13.8) was reached in 1933, followed by an increase to 16.4 in 1934, and 20.3 in 1935. The index numbers representing estimated cost of new residential buildings also decreased during each of the years 1928 to 1934, inclusive, and reached the lowest point (7.3) in 1934, followed by an increase to 10.7 in 1935. For new non-residential buildings the index number increased to 104.2 in 1928, but decreased each year thereafter until the lowest point (20.0) was reached in 1934, and in 1935 there was an increase to 24.8. For additions, alterations and repairs, the index number fell to 80.2 in 1928, increased to 108.0 in 1929, but decreased thereafter each year until the lowest point (35.8) was reached in 1933, and in 1934 there was an increase to 43.3 and a further increase in 1935 to 47.3. A chart, showing the trend of prospective building in 55 municipalities in Massachusetts, by classes of projects, appears in the appendix.¹

In 1935 the index numbers for each class of building increased from the lowest point in January or February to the highest point later in the year, as follows: all classes, combined, from 7.3 in January to 33.0 in December; new residential building, from 3.5 in January to 17.2 in June; new non-residential building, from 3.7 in January to 55.6 in November; and additions, alterations and repairs, from 27.9 in January to 75.9 in December.

SPECIAL INVESTIGATIONS

Determination of Minimum Wages to be Paid Employees on Public Works. — Chapter 461, Acts of 1935, provides for the prior determination by the Commissioner of Labor and Industries of the minimum wages to be paid mechanics, teamsters, chauffeurs, and laborers on public works by the Commonwealth or by a county, town, or district, or by persons contracting or subcontracting for such works. The Acting Commissioner, after consultation with Department officials and others interested, assigned to the Division of Statistics the work of collecting the basic wage data required in determining the minimum wage rates which should be paid. This made necessary the securing of union rates of wages, wage rates paid by municipi-

¹See chart on page 118, Plate 13.

palities and by contractors actually engaged on projects under construction similar to those coming within the provisions of the act.

This law became effective October 30. After its passage in August and prior to its becoming effective, the United States engineer in charge of P.W.A. projects in Massachusetts requested this Department to undertake at once an unofficial investigation and submit rates for all projects on file with the P.W.A. office in order that that office might establish wage rates which would in all probability continue unchanged after the law became operative.

In September much time was devoted to preliminary work determining what information was necessary, what occupations should be considered essential for the various types of projects, and in general laying the ground work for that part of the work assigned to the Division of Statistics. In that month, information was furnished to the Acting Commissioner in connection with about twenty P.W.A. projects. In October, nearly 150 requests for wage rates were made. Each request represented at least one project and, in the case of larger cities like Boston, numerous projects on which the same listing of rates was applicable. One single request for rates for sidewalk construction work throughout the State made it necessary to secure wage data for nearly 300 cities and towns.

The receipt of so great a number of requests made it imperative for the statistician in charge of labor statistics to give his time almost exclusively to this work. A temporary stenographer was employed, eight of the regular statistical investigators of the Division were assigned largely to this work, and six temporary statistical investigators were employed for at least ten days each. For a time much overtime on the part of some members of the staff was necessary. Some of the field work could be done only at night because of the necessity of calling upon labor union officials at their homes. At the close of October only a small number of determinations remained to be made, and in November only about 40 requests for wage rates were received. Many of these were answered by reference to rates then on file, and only a few required further field work. No new requests were received in December.

The rates submitted covered not only building construction, but also the construction of sewers, water systems, bridges and bridge repairs, grade crossing elimination projects, standpipe and pumping stations, sewage disposal systems, and highways in various municipalities, and sidewalk construction in nearly all cities and towns throughout the Commonwealth. As a result of the quite exhaustive investigation of wage rates paid in nearly all of the cities and towns, there has been assembled a very comprehensive file of rates applicable to many types of projects and classes of workmen in the State.

Investigation Relative to Discrimination Against Older Wage-Earners. — Chapter 33 of the Resolves of 1935 provided for "further investigation by the Department of Labor and Industries relative to the matter of preventing discrimination against certain persons in employment on account of their age."¹ Shortly following the approval of this resolve, officials of the department gave consideration to the procedure to be followed in making the investigation, and it was decided to hold a series of public hearings in the leading cities of the Commonwealth beginning in September, 1935, and in the meantime, a study of the literature of the subject was made for the purpose of determining the various phases of the subject which should be investigated. During the period, beginning September 25 and ending December 6, fourteen public hearings and two conferences were held. Stenographic notes of the testimony at each of these hearings were taken and transcribed, and abstracts and summaries were made for use in the preparation of the report.

When this investigation was first undertaken, it was hoped that definite and comprehensive information could be obtained, principally through public hearings, but the evidence thus secured was not sufficiently specific to justify conclusions as to the extent and nature of the discrimination, which, it was claimed, was being practised by employers. Accordingly, the scope of the investigation was extended to include the securing of evidence by questionnaires which were sent to officials of labor organizations, and to those employers in the Commonwealth who were known to employ ten or more wage-earners. This branch of the work was assigned to the

¹ This resolve provided that the Department of Labor and Industries should *continue* the investigation conducted by a special commission which had been established under the provisions of Chapter 39 of the Resolves of 1934.

Division of Statistics. At the close of the year a considerable part of this work had been completed, and the tabulation of the returns was being undertaken.

The questionnaire sent to officials of labor organizations provided for the return of specific information relative to persons discriminated against on account of their age and for the reporting of the names of employers who were believed to have discriminated against their employees. The number of cases of discrimination reported was relatively small, but a large number of labor officials stated that they were confident that discrimination was being practised. Each case which definitely appeared to be one of discrimination was investigated by statistical investigators who were assigned to this work.

The questionnaire, sent to about 4,000 employers in the Commonwealth who were known to employ 10 or more persons, called for information in answer to the following inquiries:

Industry or business

Approximate number of employees

Has your company a fixed age limit for new employees, and, if so, what is the specified age limit for men and women?

Does your company displace older workers, and, if so, at what age for men and for women?

Does your company transfer older workers to lighter tasks?

Does your company carry group insurance for employees?

Does your company have a pension or retirement system for employees?

The questionnaire also called for a classification, by five-year age groups of:

- (a) Number of persons now employed
- (b) Number of new employees and former employees rehired during the period January, 1934, to October, 1935
- (c) Number of persons who left employment during the same period

The statistical information which is being obtained from employers will enable the Department to determine whether or not the distribution by ages of persons employed by individual employers conforms with the general distribution by ages of all employable persons in the Commonwealth, and in the respective industries in which the employers are engaged, and to measure the extent to which discrimination on account of age exists in the various industries and classes of employment. The returns will also make it possible to determine the extent to which there is discrimination (1) in hiring new employees, (2) in rehiring former employees, and (3) in dismissing older employees.

The resolve under which this investigation is being undertaken provides that the Department "shall include in its annual report for the current year to the General Court its findings and recommendations with relation to the subject matter of this resolve, together with drafts of legislation necessary to carry said recommendations into effect." In order that the Legislature may have before it for consideration at its session in 1936 the findings and recommendations of this Department, and the draft of legislation necessary to carry its recommendations into effect, a preliminary report is being prepared, together with the draft of an act, to be submitted to the legislature as soon as possible during the session. The final report of this investigation will appear as a part of the annual report of the Department, and will include statistical data and other evidence on which its findings and recommendations will be based.

INFORMATION SERVICE.

Special Inquiries. — The answering of requests for information relative to the industries of the Commonwealth, rates of wages, hours of labor, and conditions of employment is an important part of the work of the Division. A record of such inquiries has been kept during the past year, and the number which required special attention, other than merely the sending of a marked copy of a printed or mimeographed report, was 749, of which number 191 were of such a nature as to require the making of special tabulations of information on file in the Division, and 558 of which were answered directly from the research library. That there was a very large increase in this branch of the work is indicated by the fact that there was an increase in the number of special inquiries from 482 in 1934 to 749 in 1935, a large

part of which increase was in the number of inquiries answered directly from the reference library.

In addition to its regular work during the year, the Division was called upon to answer a large number of inquiries involving the special tabulation of information, and the preparation of lists of establishments which were not published in its reports. Of these, the following were the more important:

- List of manufacturing establishments in Massachusetts in which ten or more wage-earners were employed in 1934.
- List of manufacturing establishments in Massachusetts which ceased operations or moved to other states, 1933 to April, 1935.
- List of textile mills in Massachusetts which ceased operations or moved to other states, 1921-1934.
- List of cotton textile mills in Massachusetts in operation in 1934.
- Record of manufacturing establishments which ceased operations in Massachusetts in 1934, and number of wage-earners employed therein.
- List of boot and shoe manufacturing establishments in Massachusetts which ceased operations or moved to other states, and new establishments organized in Massachusetts in 1934.
- Special tabulation of number of wage-earners employed in 1921 in concerns which went out of business during the period 1921-1934.
- Special tabulation of statistics relative to strikes in Massachusetts, 1932 through March, 1935, showing number of strikes, number of workers involved, and number of man-days lost, classified by cities and towns.
- Special tabulation of data relative to classified weekly wages in 1934, in the following industries in Massachusetts: boot and shoe cut stock and findings; electrical machinery, apparatus and supplies; muslin underwear, and women's underwear, including cotton and dress goods.
- List of laundries in Massachusetts and data relative to the operations of laundries in Boston, Brockton and Worcester.

Reference Library. — The reference library is maintained primarily for the use of the officials of the Department, but is also used extensively by the public. Many of the inquiries are received by telephone, and where the facts desired could be readily supplied, were answered immediately, but in some cases research was necessary before the information could be furnished. A librarian and one assistant devote full time to this work, and from time to time it has been necessary to employ temporary assistants. The total number of inquiries answered by the librarian and assistant during the past year was 558, not including service rendered to many individuals who have called in person to consult reports and books of reference. The library now includes approximately 4,000 volumes of official and unofficial reports and reference books, and numerous pamphlets. There are received currently 18 quarterlies, 225 monthlies, 37 weeklies, 13 daily newspapers and miscellaneous mimeographed government reports. Many of these reports are received on an exchange basis from other Federal and State departments, trade unions and private research organizations. Clippings from the daily newspapers and some industrial journals are referred directly to the officials of the Department, and are also used in answering many requests for current information.

The subjects of inquiry which were of special interest during the past year were: Federal labor legislation and labor legislation in Massachusetts and in other states; unemployment; employment of women and minors; prevailing rates of wages on public works; Federal administration and relief measures; discrimination in employment on account of age; occupational diseases; double compensation for minors engaged in industry; safeguards for machinery; mineral and other resources of the State; national wealth and income; pension systems; building operations and costs; status of bills relating to labor introduced in the legislature; industrial statistics; statistics from the Federal census; minimum wages; social security laws and administration; handicapped workers; labor injunctions; industrial relations programs; and labor disputes.

STATISTICS OF MANUFACTURES, 1934

Introductory. — The data presented in this section of this report were compiled from returns received from manufacturers in Massachusetts, in connection with the Census of Manufactures for the year 1934, which census was the forty-ninth of a continuous series of annual censuses in Massachusetts, beginning with the one taken in 1886.

The total number of manufacturing establishments in operation in Massachusetts in 1934, excluding those in which the value of products manufactured during the year was less than \$5,000, was 8,336. The total value of products manufactured for the year in these establishments was \$1,855,598,291, the cost of stock and materials used in manufactures amounted to \$924,075,172, and the difference between these amounts (\$931,523,119) represents the *value added* by the various manufacturing processes. The average number of wage-earners employed in the 8,336 establishments was 423,933, and the total amount paid in wages for the year was \$408,617,489.¹

As compared with the totals for 1933, there were increases in 1934, as follows: value of products, 11.2 per cent; value added by manufacture, 7.3 per cent; value of stock and materials used, 15.4 per cent; amount paid in wages, 15.2 per cent; and average number of wage-earners employed, 6.3 per cent. As compared with 1932, the lowest point of the depression, the gains were even more significant.

During the year 1934 the total number of new manufacturing establishments which began operations in Massachusetts was 318, five of which moved to Massachusetts from other states, and 225 establishments discontinued operations in Massachusetts, 27 of which moved to other states. The net result of these changes was a gain of 93 in the number of establishments.

The returns for the year were tabulated by municipalities and by principal industries in each municipality, and the results were issued in the form of mimeographed press announcements.² That the better conditions prevailing in 1933 were continued into 1934 is evident from an examination of the totals for the 39 cities of the State for 1934, 36 of which exhibited increases in product value, in 37 of which there were higher pay rolls, and in 33 of which there were larger numbers of wage-earners employed in manufacturing industries than in the previous year. Since the relatively prosperous year 1929, there had been a continuous decline from year to year¹ in the average number of wage-earners employed, until 1933, when there was an increase in employment amounting to 13.7 per cent, followed by a still further increase of 6.3 per cent in 1934.

The substantial improvement in 1934 over 1933 recorded for *all* manufacturing industries, combined, was also recorded for the major industries, with the notable exception of woolen and worsted goods, in which industry the decrease in product value amounted to about 16 per cent, largely due to curtailment in the city of Lawrence, the principal center for the manufacture of woolen and worsted goods in this country. The value of products of this industry in Massachusetts fell from \$148,798,542 in 1933 to \$125,701,633 in 1934, — while the average number of wage-earners which had risen from 28,593 in 1932 to 39,808 in 1933 decreased in 1934 to 35,991.

In the boot and shoe industry, although there was a slightly larger value of product in 1934 than in 1933, there was a decrease in the average number of wage-earners from 46,739 in 1933 to 45,951 in 1934. During 1934, 47 shoe concerns either went out of business or moved from the State, as compared with 57 establishments which ceased operations in 1933. Of the 47 establishments which were lost to Massachusetts in 1934, 16 establishments, with 2,850 wage-earners, left the State for other locations, while the other 31 discontinued operations, whereas in 1933, of the 57 establishments which went out of business, 13 left the State. To offset these losses, there were, in 1934, 33 new establishments which began operations in the boot and shoe industry, employing 1,504 wage-earners, as compared with 40 new establishments in the industry in the year 1933, employing 3,068 wage-earners. The net result in the boot and shoe industry from these changes was a loss of 14 establishments and 4,312 wage-earners in 1934, as against 17 establishments affect-

¹ See Table 20 on page 93.

² For a descriptive list, see note 3, at the bottom of page 92.

ing only 693 wage-earners in 1933. Migrations within the State in this industry, although somewhat less disturbing in 1934 than in 1933, continued to be a matter of concern. In 1934, 14 establishments employing 1,631 wage-earners moved from one municipality to another within the State and in 1933 12 establishments, with a total of 2,165 wage-earners moved from place to place within the State.

In cotton goods, in 1934, the epidemic of closing mills, prevalent for nearly a decade, had practically ceased. Reports in 1934 were received from 105 establishments, as compared with 103 establishments reporting in the year 1933. The average number of wage-earners in this industry increased from 45,418 in 1933 to 49,297 in 1934, while the value of products, which included the processing taxes in both years, increased from \$98,602,761 in 1933 to \$111,247,620 in 1934.

Although in one important industry (cotton goods manufacturing), Massachusetts has lost the leading position among the states,¹ and although boot and shoe manufacturing holds first place by only a very narrow margin, this State still holds first place in the production of woolen and worsted goods. It is of further interest to note that in 1933, Massachusetts, for the first time, came to be the leading state in leather tanning and finishing, the value of products of which industry increased from \$48,630,000 in 1933 to \$50,131,406 in 1934, while the number of wage-earners increased from 9,980 to 10,042. The value of products in the leather industry in Pennsylvania, which was the closest competitor with Massachusetts, was \$43,523,098 in 1933, and the number of wage-earners employed in the industry in that state was 7,834.

In recent years the generally higher tariffs in this and other countries were largely responsible for the loss of foreign markets by manufacturers in Massachusetts; nevertheless, the trend of exports in 1934 exhibits the same upward curve as the data for all manufactures, combined. It is true, that there was a substantial gain of over six millions of dollars (from \$29,097,406 in 1932 to \$35,354,202 in 1934), but the amounts represented only 1.9 per cent of the total production in either year. The total value of exports from Massachusetts factories in 1919, the peak year, was \$210,759,607, representing a little over five per cent (5.2) of the total value of products (\$4,011,181,532) in Massachusetts in that year.

Of interest also is the gradual change in the character of the power used in manufacturing industries, electric power in large measure superseding that of direct steam.² More recently the Diesel type of oil-burning engine has been introduced into the manufacturing industry and the records for 1934 show that this type of engine was being used in seven manufacturing establishments.

In order that the manufactures data for municipalities and principal industries therein could be made public as early as possible, preliminary tabulations were issued in the form of press announcements³ immediately on completion of the tabulation for the respective municipalities.

SUMMARY OF PRINCIPAL DATA, 1933 TO 1934

All Industries, Combined.—In order to show the general industrial trend in Massachusetts for a series of years, the principal data for all manufacturing industries, combined, for the years 1913 to 1934, inclusive, are presented in Table 20. In making comparisons for the several years of the money values presented in this summary, due allowance should be made for price fluctuations from

¹ In 1933, the last year in which a Federal Census was taken, North Carolina and South Carolina held first and second places, respectively, in the manufacture of cotton goods, Georgia, third, and Massachusetts, fourth. In the same year, Massachusetts held first place in the manufacture of boots and shoes, woolen and worsted goods, and leather goods.

² See Table 30 on page 106.

³ This series of press notices was issued under the title "Manufactures Press Notices," and included the following:

Nos. 1-39. *Individual Cities.* A separate press notice for each of the 39 cities containing data, by principal industries, for 1934, with comparable data for specified industries for certain prior years.

No. 40. *Summary by Cities.* Totals only for each city, 1934.

No. 41. *General Summary for the State.* Principal data by years, 1917-1934.

No. 42. *Summary by Towns.* Totals only for each town, 1934.

No. 43. *Metropolitan Boston.* Principal data by municipalities, 1934.

No. 44. *Summary by Industries.* Principal data for leading industries, 1934, with comparable data for the years 1924-1934.

No. 45. *Metropolitan Boston.* Principal data by industries, 1934, with comparable data for the years 1924-1934.

No. 46-54. *Special Towns.* A separate press notice for each of the following important industrial towns: Adams, Athol, Easthampton, Framingham, Hudson, Northbridge, Norwood, Watertown, and West Springfield.

year to year. The *values* of products manufactured do not necessarily represent the relative *volume* of goods produced in the several years.

Table 20.—Principal Data Relative to Manufactures in Massachusetts, All Industries Combined, 1913–1934, inclusive

YEARS	Number of Establishments	Capital Invested	Value of Stock and Materials Used	Amount of Wages Paid during the Year	Average Number of Wage-earners Employed	Value of Products	Value Added by Manufacture
1913	8,405	\$1,345,461,875	\$961,778,476	\$351,299,706	616,927	\$1,658,728,363	\$696,949,887
1914	12,013 ¹	1,548,960,733	931,383,793	341,309,517	606,698	1,641,373,047	709,989,254
1915	9,707	1,550,080,995	959,662,457	346,243,472	596,348	1,692,445,366	732,782,909
1916	9,829	1,791,050,092	1,354,433,202	447,957,731	682,621	2,349,933,003	995,499,801
1917	9,865	2,239,848,630	1,782,440,354	537,144,629	708,421	3,020,557,545	1,238,117,191
1918	9,695	2,510,730,295	2,249,822,722	679,401,273	719,210	3,851,346,215	1,601,523,493
1919	11,906 ¹	2,962,108,527	2,260,713,036	766,623,337	713,836	4,011,181,532	1,750,468,496
1920	10,262	2,987,620,867	2,489,237,446	891,176,822	695,832	4,370,276,822	1,881,039,376
1921	9,994 ¹	²	1,441,035,230	641,360,936	579,071	2,849,413,516	1,408,378,286
1922	10,056	2,822,014,756	1,512,510,105	678,073,968	612,682	3,002,625,958	1,490,115,853
1923	10,519 ¹	²	1,835,218,349	799,363,111	667,443	3,570,543,265	1,735,324,916
1924	10,174	2,853,590,206	1,629,342,134	711,812,104	589,364	3,126,137,145	1,496,795,011
1925	10,027 ¹	²	1,794,643,051	716,155,593	591,438	3,426,617,326	1,631,974,275
1926	9,903	2,819,189,700	1,790,611,294	738,208,510	602,343	3,419,814,877	1,629,203,583
1927	10,037 ¹	²	1,678,812,411	705,929,549	578,068	3,317,851,888	1,639,039,477
1928	9,971	2,735,070,138	1,663,155,564	670,063,291	540,927	3,224,227,651	1,561,072,087
1929	9,872 ¹	²	1,681,432,788	694,805,312	557,494	3,392,162,237	1,710,729,449
1930	9,586	2,483,589,920	1,333,317,227	573,838,044	481,449	2,676,387,256	1,343,070,029
1931	9,305 ¹	²	1,015,093,739	474,189,202	434,441	2,157,450,449	1,142,356,710
1932	8,778	1,888,244,721	718,347,675	334,358,550	350,521	1,521,752,939	803,405,264
1933	8,145 ¹	²	800,611,332	354,523,624	398,592	1,668,733,387	868,122,055
1934	8,336	1,825,540,470	924,075,172	408,617,489	423,933	1,855,598,291	931,523,119

¹ The Census of Manufactures for the years 1914, 1919, 1921, 1923, 1925, 1927, 1929, 1931, and 1933 included certain publishing establishments not canvassed in the other years specified, and data for these years, therefore, are not strictly comparable with corresponding data for the other years specified.

² Not called for on the questionnaire.

The State. — In Table 21 data are presented for 16 of the leading industries in 1934, namely, those having product values exceeding \$25,000,000 for that year, and in Table 22 the principal data for 1934 are presented for each of the industries in which there were three or more establishments represented and for which data can be shown without disclosing the operations of individual establishments.

Table 21. — Summary of Data Relative to the Sixteen Principal Manufacturing Industries in Massachusetts — 1934

PRINCIPAL INDUSTRIES (Arranged in the order of value of products) ¹	Number of Estab- lish- ments	Value of Stock and Materials Used	Amount of Wages Paid during the Year	Average Number of Wage-earners Employed	Value of Products
All Industries	8,336	\$924,075,172	\$408,617,489	423,933	\$1,855,598,291
Boots and shoes, other than rubber	347	68,463,192	39,444,814	45,951	133,985,336
Woolen and worsted goods	114	73,518,559	30,646,684	35,991	125,701,633
Cotton goods, excluding cotton small wares	105	57,690,978 ²	36,473,572	49,297	111,247,620
Printing and publishing	723	19,963,785	18,835,230	12,406	78,773,082
Electrical machinery, apparatus, and supplies	88	23,723,572	17,502,155	17,044	67,874,375
Dyeing and finishing textiles	73	45,512,362	12,506,124	12,942	67,293,143
Bread and other bakery products	1,075	32,983,792	12,889,102	11,393	67,094,325
Clothing, men's and women's, including work clothing	442	29,204,071	12,065,074	13,984	53,894,126
Leather: Tanned, curried, and finished	99	30,878,912	11,505,967	10,042	50,131,406
Foundry and machine-shop products	360	15,524,218	15,004,410	12,301	49,352,674
Paper and wood pulp	73	23,021,908	9,591,727	10,071	46,635,725
Meat packing, wholesale	26	33,793,756 ²	3,324,627	2,615	41,283,296
Boot and shoe cut stock and findings, not made in boot and shoe factories	301	24,498,170	6,482,718	7,007	39,540,231
Rubber goods, including rubber tires and inner tubes ⁴	52	18,903,718	6,449,584	6,921	36,265,951
Textile machinery and parts	104	7,851,179	9,375,405	8,788	26,658,712
Knit goods	77	14,423,617	6,292,813	7,933	26,008,808
All other industries ⁵	4,277	404,119,383	160,227,483	159,247	833,857,848

¹ Includes data for all industries for which the value of products in 1934 exceeded \$25,000,000, except soap; sugar refining; and petroleum refining, the data for which cannot be given separately without disclosing the operations of individual establishments.

² Includes the processing tax.

³ Includes radio apparatus, heretofore tabulated with this industry and retained here for purposes of comparison. Presented separately, in 1934, radio apparatus would register 14 establishments with product value of \$8,896,302.

⁴ Exclusive of rubber boots and shoes.

⁵ Includes data for all industries for which the value of products in 1934 was less than \$25,000,000 and also soap; sugar refining; and petroleum refining, the data for which cannot be given separately without disclosing the operations of individual establishments.

Table 22. — Principal Data Relative to Manufactures, 1934.
The State: By Industries

INDUSTRIES (Arranged alphabetically)	Number of Estab- lish- ments	Value of Stock and Materials Used	Amount of Wages Paid during the Year	Average Number of Wage-earners Employed	Value of Products
All Industries	8,336	\$924,075,172	\$408,617,489	423,933	\$1,855,598,291
Aluminum products	7	90,582	34,811	34	177,615
Artificial leather	5	1,440,878	281,104	246	2,229,100
Artists' materials	5	58,032	52,952	52	192,040
Awnings, tents, sails, and canvas covers	57	435,669	249,535	212	1,099,010
Bags, other than paper	4	636,451	55,301	73	778,584
Bags, paper	6	1,509,755	251,499	255	2,135,747
Baskets and rattan and willow ware	4	101,055	48,417	60	215,144
Belting and packing, leather	17	1,273,593	364,447	324	3,160,429
Beverages, non-alcoholic	142	3,064,612	885,151	826	7,892,712
Blackening, stains, and dressings	65	1,857,941	458,439	393	4,301,015
Bolts, nuts, washers, and rivets	9	198,394	90,814	83	392,315
Bookbinding and blankbook making	72	2,432,401	2,790,286	2,629	8,096,669
Boot and shoe cut stock and findings, not made in boot and shoe factories	301	24,498,170	6,482,718	7,007	39,540,231
Boots and shoes, other than rubber	347	68,463,192	39,444,814	45,951	133,985,336
Boots and shoes, rubber	5	6,209,627	6,533,859	6,790	19,039,543
Boxes, paper	99	10,893,429	4,068,359	4,309	20,430,813
Boxes, wooden, except cigar boxes	50	1,681,125	1,943,605	1,175	3,713,812
Bread and other bakery products	1,075	32,983,792	12,889,102	11,393	67,094,325

Table 22. — Continued

INDUSTRIES (Arranged alphabetically)	Number of Estab- lish- ments	Value of Stock and Materials Used	Amount of Wages Paid during the Year	Average Number of Wage-earners Employed	Value of Products
Brooms	7	\$154,861	\$50,935	63	\$242,909
Brushes, other than rubber	19	1,334,736	513,889	625	3,549,905
Butter	4	351,673	24,566	19	417,965
Buttons	9	150,419	90,370	132	329,504
Canned and preserved fish	14	1,867,789	723,825	748	3,635,265
Canned and preserved fruits and vegetables	29	3,663,259	595,790	556	5,595,866
Card cutting and designing	5	375,348	158,562	187	919,957
Carpets and rugs, rag	5	29,292	22,091	36	74,175
Carpets and rugs, wool, other than rag	5	2,275,570	1,671,236	1,888	5,510,642
Carriages and sleds, children's Caskets, coffins, burial cases, etc.	11	1,530,836	933,349	1,123	3,364,919
Cereal preparations	16	844,429	441,039	412	2,202,176
Cheese	4	70,481	12,090	10	105,692
Cheese	4	737,091	38,639	30	923,136
Chemicals	12	6,757,022	2,398,041	2,339	14,686,362
Chocolate and cocoa products	10	6,054,226	1,032,610	963	10,156,115
Cigars	31	756,485	327,416	448	1,667,250
Clay products (other than pottery)	13	157,950	225,161	248	559,900
Cleaning and polishing prep- arations	35	352,458	79,514	80	796,673
Clocks and watches, etc.	13	1,845,667	2,627,122	2,952	6,369,637
Clothing, men's (except work) Clothing, work (including work shirts), men's	149	10,901,943	5,339,957	5,746	21,785,930
Clothing, women's	41	3,356,182	1,171,935	1,452	5,661,660
Cloth sponging	252	14,945,946	5,553,182	6,786	26,446,536
Combs and hairpins	4	3,188	31,583	23	67,562
Combs and hairpins	8	471,011	361,463	482	977,021
Compressed and liquefied gases	9	329,849	147,582	123	1,905,033
Concrete products	33	556,269	263,817	245	1,374,615
Condensed and evaporated milk	4	769,986	51,725	35	961,744
Confectionery	109	13,174,168	4,445,673	5,781	24,342,785
Cooperage	14	658,807	282,307	334	1,324,485
Cordage and twine	12	2,707,950	1,132,387	1,296	7,129,023
Corsets and allied garments	11	1,289,603	511,867	655	2,482,887
Cotton goods	105	57,690,978	36,473,572	49,297	111,247,620
Cotton small wares	36	4,184,048	1,986,072	2,432	8,084,337
Cutlery (not including silver and plated cutlery) and edge tools	44	1,913,149	1,828,012	1,859	13,915,870
Dentists' supplies	5	184,316	71,072	89	351,168
Doors and shutters, metal	7	160,254	104,309	91	370,782
Druggists' preparations, in- cluding patent medicines and compounds	72	5,377,937	1,071,145	1,022	15,373,295
Dyeing and finishing textiles	73	45,512,362	12,506,124	12,942	67,293,143
Electrical machinery, appa- ratus, and supplies	74	20,282,306	14,711,412	13,474	58,978,073
Electroplating	39	119,067	288,452	272	625,685
Elevators and elevator equip- ment	8	217,596	147,547	108	576,209
Engines, turbines, water wheels, etc.	6	120,805	87,729	85	273,553
Engraving (other than steel, copperplate, or wood)	25	68,661	204,787	157	482,663
Engraving, steel, copperplate, and wood, and plate print- ing	21	516,399	386,139	413	1,451,783
Envelopes	18	3,920,650	1,664,720	1,801	8,103,032
Feeds, prepared, for animals and fowls	14	4,008,467	268,284	238	5,209,697
Felt goods, wool, hair, or jute	11	1,843,310	681,896	680	3,866,437
Fertilizers	9	2,075,480	254,810	309	3,019,006
Flavoring extracts and flavor- ing sirups	21	847,061	182,459	170	2,058,141
Flour and other grain-mill products	10	844,071	32,095	34	946,612
Food preparations	48	1,775,463	399,439	431	4,134,762
Forgings, iron and steel	8	1,106,256	669,094	563	2,528,678
Foundry and machine-shop products	360	15,524,218	15,004,410	12,301	49,352,674
Fur goods	16	279,329	140,837	90	596,294
Furnishing goods, men's	27	2,611,506	953,385	1,281	4,557,156
Furniture, including store and office fixtures	193	7,153,903	5,158,175	5,365	16,363,596
Galvanizing and other coat- ing	4	87,279	45,325	41	190,794
Gas, manufactured, illuminat- ing and heating	34	6,699,943	2,987,556	2,049	22,450,411

Table 22.—Continued

INDUSTRIES (Arranged alphabetically)	Number of Estab- lish- ments	Value of Stock and Materials Used	Amount of Wages Paid during the Year	Average Number of Wage-earners Employed	Value of Products
Glue and gelatin	10	\$2,944,911	\$844,110	732	\$5,205,363
Gold leaf and foil	6	32,035	9,589	12	62,812
Hand stamps and stencils and brands	19	72,860	100,207	88	332,303
Hardware	27	1,057,634	681,468	741	2,892,782
Hats and caps, except felt and straw, men's	16	113,211	59,457	73	280,431
House-furnishing goods	84	6,222,425	1,204,316	1,685	8,988,576
Ice cream	123	5,145,539	1,167,383	918	10,184,262
Ice, manufactured	46	695,395	440,949	298	2,961,693
Instruments, professional and scientific	23	893,758	737,601	615	3,102,655
Jewelers' findings and mate- rials	15	3,355,675	635,763	598	4,948,519
Jewelry	78	3,132,065	3,240,102	3,221	10,005,526
Jewelry and instrument cases	7	270,111	221,890	254	800,545
Knit goods	77	14,423,617	6,292,813	7,933	26,008,808
Lasts and related products	21	641,752	780,029	610	2,230,750
Leather goods	28	943,554	451,805	573	2,082,443
Leather: Tanned, curried, and finished	99	30,878,912	11,505,967	10,042	50,131,406
Lighting equipment	9	351,397	223,412	235	1,052,427
Lime	6	247,025	155,924	167	624,532
Liquors, distilled, and ethyl alcohol	7	2,324,982	214,622	201	3,863,235
Liquors, malt	14	7,842,703	1,460,915	880	16,849,476
Lithographing	12	1,263,078	1,085,540	862	3,661,547
Lumber and timber products	30	356,211	259,762	300	842,473
Macaroni, spaghetti, vermi- celli, etc.	9	783,192	133,440	147	1,150,171
Machine-tool accessories and precision tools	37	1,747,771	2,454,277	2,408	8,439,500
Machine tools	23	1,998,271	2,098,894	1,717	7,261,934
Marble, granite, and other stone products	103	892,901	1,068,291	833	3,027,375
Mattresses and bed springs	61	1,836,047	597,212	663	3,308,720
Meat packing, wholesale	26	33,793,756	3,324,627	2,615	41,283,296
Millinery	26	1,391,869	730,382	896	3,044,493
Minerals and earths, ground	7	509,928	279,069	294	1,202,002
Mirror and picture frames	15	144,272	124,741	138	427,478
Mirrors and other glass products	16	138,733	170,187	141	498,298
Miscellaneous articles	41	1,644,986	1,152,162	1,500	3,609,663
Models and patterns, not in- cluding paper patterns	53	153,563	530,825	341	1,202,842
Motor-vehicle bodies and motor-vehicle parts	27	1,311,032	976,163	976	3,272,345
Musical instruments and parts, except piano and organ	7	111,313	152,632	130	410,877
Nails, spikes, etc., not made in wire mills	17	955,947	715,030	692	2,488,053
Nonferrous-metal alloys and products, except aluminum	67	3,508,532	1,410,053	1,381	6,718,286
Paints and varnishes	47	4,548,057	705,403	661	8,810,562
Paper	69	22,716,064	9,480,535	9,952	46,139,930
Paper goods	72	12,506,885	4,227,752	4,277	21,411,938
Paving materials	7	1,217,512	149,061	104	1,929,364
Perfumes, cosmetics, and other toilet preparations	17	154,955	54,833	61	450,968
Photo-engraving	40	231,705	799,797	430	1,928,895
Planing-mill products	100	1,835,779	934,069	815	3,859,607
Plumbers' supplies	21	1,180,672	519,750	523	2,290,522
Pocketbooks, purses, and cardcases	21	1,850,319	865,789	1,185	3,686,983
Printing and publishing ¹	723	19,963,785	18,835,230	12,406	78,773,082
Pulp goods and molded com- position products	8	747,466	409,400	417	1,831,464
Pumps (hand and power) and pumping equipment	12	588,309	301,664	252	1,371,915
Radio apparatus and phono- graphs	14	3,441,266	2,790,743	3,570	8,896,302
Regalia, robes, vestments, and badges	5	24,944	13,979	16	65,630
Rubber goods, including rub- ber tires and inner tubes ²	52	18,903,718	6,449,584	6,921	36,265,951
Sausage and sausage casings	71	5,079,313	756,872	721	6,825,601
Screw-machine products and wood screws	26	1,286,534	1,256,270	1,130	3,773,417
Sheet-metal work	68	1,447,747	821,245	639	3,504,953

¹ Exclusive of publishing establishments which do no printing.² Exclusive of rubber boots and shoes.

Table 22. — Continued

INDUSTRIES (Arranged alphabetically)	Number of Estab- lish- ments	Value of Stock and Materials Used	Amount of Wages Paid during the Year	Average Number of Wage-earners Employed	Value of Products
Ship and boat building, steel and wooden	31	\$10,477,711	\$4,595,221	3,137	\$16,498,326
Shirts and nightwear, men's	14	2,360,639	1,154,315	1,599	4,504,977
Signs and advertising novel- ties	24	311,872	287,819	278	969,738
Silk and rayon goods	42	11,506,013	6,974,295	9,363	23,639,005
Silverware and plated ware .	27	2,083,246	1,629,431	1,568	5,824,568
Smelting and refining non- ferrous metals, not from the ore	6	676,298	47,021	43	837,182
Sporting and athletic goods .	11	2,081,017	1,318,213	1,305	4,697,404
Stamped and enameled ware, and metal stampings	42	1,820,159	1,299,687	1,292	4,285,478
Stationery goods	12	713,060	341,864	428	1,671,108
Statuary and art goods . . .	6	26,715	38,790	33	97,953
Steam and hot-water heating apparatus and steam fit- tings	26	1,455,478	1,305,821	1,244	4,919,352
Steam and other packing . . .	7	193,161	115,183	94	621,408
Stereotyping and electrotyp- ing	16	127,946	428,133	297	1,184,659
Stoves and ranges (other than electric) and warm-air furnaces	38	4,644,331	2,904,458	2,696	11,867,095
Structural and ornamental metal work	57	1,660,662	700,249	542	3,365,861
Surgical and orthopedic ap- pliances	24	307,851	150,783	190	762,827
Suspenders, garters, and other elastic woven goods	6	818,986	256,993	398	1,375,393
Tanning materials and natu- ral dyestuffs	22	1,922,547	261,685	207	3,098,519
Textile machinery and parts	104	7,851,179	9,375,405	8,788	26,658,712
Tin cans and other tinware .	8	1,352,506	569,943	514	2,611,167
Tools, not including edge tools, machine tools, files, or saws	41	1,348,426	1,138,883	1,207	4,151,893
Toys, games and playground equipment	23	2,365,769	1,138,880	1,493	4,940,476
Trimmings and stamped art goods	14	524,476	120,618	149	845,007
Trunks, suitcases, and bags .	16	370,031	143,350	186	765,367
Umbrellas, parasols, and canes	5	242,792	64,025	83	463,749
Upholstering materials . . .	4	66,531	11,723	14	101,347
Vinegar and cider	10	457,608	71,605	81	750,034
Waste, processed	19	1,214,837	268,745	339	1,904,272
Window and door screens and weather strip	16	146,775	56,051	54	289,277
Window shades and fixtures	27	500,137	122,182	119	888,153
Wire drawn from purchased rods	12	5,906,790	4,216,765	3,454	12,848,080
Wirework	24	1,691,776	938,395	960	3,868,275
Wood turned and shaped and other wooden goods	34	722,902	525,201	600	1,810,642
Woolen and worsted goods . .	114	73,518,559	30,646,684	35,991	125,701,633
Wool scouring	9	575,521	765,749	727	1,998,714
Wool shoddy	19	2,152,553	495,531	538	3,152,504
All other industries ¹	311	126,594,313	31,580,415	28,709	222,909,915

¹ Includes data for all industries represented by less than three establishments as well as such industries as soap sugar refining; and petroleum refining, the data for which cannot be given separately without disclosing the operations of individual establishments.

Cities. — Principal data having reference to manufactures in each of the 39 cities of the Commonwealth, with totals for the State and for 316 towns, grouped together, are presented in Table 23.

The total number of manufacturing establishments in the 39 cities in Massachusetts, considered as a group, was 6,707, representing a capital investment of \$1,375,724,348. The total value of all products manufactured in the 39 cities in 1934 amounted to \$1,443,048,638, the value of stock and materials used in manufacture was \$718,080,669, and the difference between these amounts (\$724,967,969) represents the *value added* by the various manufacturing processes. The average number of wage-earners employed in the 6,707 establishments in the 39 cities during the year was 318,605, and the total amount paid in wages was \$310,190,684.

The total value of products manufactured in the 39 cities in 1934 (\$1,443,048,638) constituted 77.8 per cent of the aggregate value (\$1,855,598,291) of all products

manufactured in the Commonwealth in that year, and the average number of wage-earners (318,605) employed in the manufacturing industries in the 39 cities constituted 75.1 per cent of the average number of wage-earners (423,933) employed in all manufacturing establishments in the State. The total population of the 39 cities (as of April 1, 1935) was 2,975,790, constituting 68.4 per cent of the aggregate population (4,350,910) of the State in that year.

As a manufacturing center, Boston ranked first among the cities of the Commonwealth, and the value of products manufactured in the city in 1934 was \$322,176,950, constituting 17.4 per cent of the aggregate value of all products manufactured in the entire State during the year. In order of importance, based on the value of products manufactured in 1934, the ten leading cities were: Boston, Cambridge, Worcester, Lawrence, Somerville, Fall River, New Bedford, Springfield, Lynn, and Lowell.

Table 23. — Principal Data Relative to Manufactures in the 39 Cities in Massachusetts, 1934

CITIES	Number of Establishments	Value of Stock and Materials Used ¹	Amount of Wages Paid during the Year	Average Number of Wage-earners Employed	Value of Products
The State	8,336	\$924,075,172	\$408,617,489	423,933	\$1,855,598,291
<i>39 Cities</i>	<i>6,707</i>	<i>718,080,869</i>	<i>310,190,684</i>	<i>318,605</i>	<i>1,448,048,638</i>
Attleboro	112	9,396,966	4,322,789	4,386	18,950,983
Beverly	86	1,947,171	4,016,954	2,951	8,582,387
Boston	2,104	159,223,298	56,101,831	50,627	322,176,950
Brockton	220	18,134,096	8,849,571	9,657	36,020,354
Cambridge	349	40,666,508	15,530,141	15,418	111,147,538
Chelsea	102	7,805,536	4,028,293	4,166	15,904,010
Chicopee	47	16,453,907	6,719,743	6,440	31,587,729
Everett	101	28,447,151	4,932,621	4,165	42,581,782
Fall River	256	38,924,992	18,833,881	24,078	66,876,751
Fitchburg	91	12,221,406	4,740,212	5,511	22,076,888
Gardner	66	4,976,417	3,580,643	3,914	12,391,223
Gloucester	57	3,740,824	1,479,857	1,583	7,317,701
Haverhill	245	13,074,316	6,872,839	7,653	27,248,793
Holyoke	139	15,254,888	8,578,139	9,493	34,217,746
Lawrence	152	41,650,598	16,910,938	19,880	72,438,927
Leominster	67	6,166,622	3,579,678	4,478	13,790,789
Lowell	190	25,073,514	11,347,689	13,532	46,705,163
Lynn	295	20,634,330	12,885,090	12,251	54,176,645
Malden	94	8,464,042	2,841,990	3,126	17,447,923
Marlborough	27	2,875,173	1,957,007	2,375	6,303,442
Medford	51	3,010,991	962,379	874	5,548,733
Melrose	20	783,565	234,812	240	1,508,241
New Bedford	207	31,684,684	18,996,525	24,631	63,661,403
Newburyport	34	2,128,145	1,519,336	1,647	5,026,572
Newton	54	3,962,523	1,919,560	2,189	9,319,845
North Adams	46	10,036,570	4,018,449	4,906	17,535,612
Northampton	46	2,319,136	1,814,876	1,952	6,761,047
Peabody	77	14,912,742	6,575,764	5,799	25,705,709
Pittsfield	53	7,933,362	4,335,113	4,267	19,166,266
Quincy	121	12,699,128	5,748,122	4,164	22,066,866
Revere	17	333,001	187,450	208	698,156
Salem	98	10,129,300	5,272,309	5,876	22,477,263
Somerville	129	53,227,372	6,964,827	5,997	69,330,907
Springfield	275	23,824,491	15,681,084	14,307	58,828,267
Taunton	78	5,951,118	3,309,350	3,632	12,977,627
Waltham	79	3,704,075	4,047,267	4,078	11,582,790
Westfield	46	3,337,313	1,476,093	1,629	6,918,291
Woburn	42	3,438,227	1,589,939	1,416	6,649,734
Worcester	484	49,533,171	27,427,523	25,109	109,341,585
<i>316 Towns</i>	<i>1,629</i>	<i>205,994,503</i>	<i>98,426,805</i>	<i>105,328</i>	<i>412,549,653</i>

¹ Includes the processing taxes.

Towns. — The total value of products manufactured in the 316 towns in 1934 (\$412,549,653) constituted 22.2 per cent of the aggregate value (\$1,855,598,291) of all products manufactured in the Commonwealth in that year, and the average number of wage-earners (105,328) employed in the manufacturing industries in the 316 towns constituted 24.8 per cent of the average number of wage-earners (423,933) employed in all manufacturing establishments in the State. The total population of the 316 towns (as of April 1, 1935) was 1,375,120, and these constituted 31.6 per cent of the aggregate population (4,350,910) of the State.

In order of importance, based on the value of products manufactured in 1934, the ten leading manufacturing towns were: Watertown, Norwood, Southbridge, Braintree, Walpole, Framingham, Easthampton, West Springfield, Northbridge, and Andover.

Table 24. — Principal Data Relative to Manufactures in the 316 Towns in Massachusetts, 1934

TOWNS	Number of Estab- lish- ments	Value of Stock and Materials Used	Amount of Wages Paid during the Year	Average Number of Wage-earners Employed	Value of Products
The State	8,336	\$924,075,172	\$408,617,489	423,933	\$1,855,598,291
<i>39 Cities</i>	<i>6,707</i>	<i>718,080,669</i>	<i>310,190,684</i>	<i>318,605</i>	<i>1,443,048,638</i>
<i>316 Towns</i> ¹	<i>1,629</i>	<i>205,994,503</i>	<i>98,426,805</i>	<i>105,328</i>	<i>412,549,653</i>
Abington	13	1,282,634	598,675	603	2,460,075
Acton	7	584,253	157,008	174	936,698
Adams	21	3,194,297	2,450,483	3,024	6,651,294
Amesbury	24	2,709,976	1,425,271	1,595	5,847,326
Amherst	8	109,458	62,046	71	225,939
Andover	14	4,750,433	1,866,713	2,222	8,433,923
Arlington	24	315,451	107,128	104	604,378
Ashburnham	7	211,459	202,438	306	564,180
Athol	33	2,723,019	1,497,563	1,812	6,576,256
Ayer	7	39,179	30,494	34	100,445
Barnstable	5	31,509	26,813	24	128,274
Belmont	3	10,682	14,110	14	40,792
Billerica	7	1,809,378	845,066	828	3,314,889
Braintree	19	11,606,955	1,378,125	1,276	13,489,632
Bridgewater	12	2,687,903	838,179	944	4,355,120
Brookline	15	383,684	237,555	258	971,138
Canton	19	2,622,198	1,163,708	1,289	6,267,367
Chelmsford	7	227,393	466,854	446	1,452,527
Chester	3	145,348	77,597	82	454,821
Clinton	24	2,892,150	1,178,675	1,176	5,155,585
Concord	10	219,783	161,575	167	506,758
Danvers	16	1,668,874	798,463	821	3,293,679
Dedham	11	160,650	136,512	146	425,487
Deerfield	7	283,434	73,540	59	485,015
Dudley	9	1,927,155	985,590	1,168	3,342,111
East Bridgewater	5	210,980	245,799	210	803,242
Easthampton	18	7,140,528	1,655,679	1,855	10,546,616
Easton	8	826,395	354,444	438	1,771,853
Foxborough	6	755,695	610,489	545	2,427,743
Framingham	34	6,882,579	3,044,106	3,031	11,930,894
Franklin	21	2,070,886	883,625	887	3,854,652
Grafton	7	1,236,539	814,747	1,020	2,326,833
Great Barrington	12	1,088,589	550,093	674	2,119,910
Greenfield	33	1,312,680	1,316,269	1,278	5,146,544
Hingham	3	38,697	27,038	25	97,698
Holbrook	4	229,788	108,304	110	557,406
Hudson	21	2,504,093	2,141,302	2,299	6,320,749
Ipswich	10	573,501	404,965	519	1,171,725
Kingston	5	171,342	132,176	156	430,985
Leicester	4	94,056	80,072	93	237,019
Lexington	5	117,846	45,317	41	225,439
Manchester	5	23,202	26,578	22	71,345
Mansfield	14	1,211,960	506,998	504	2,360,530
Marblehead	11	111,083	132,361	165	320,747
Medway	4	367,577	280,634	317	1,023,401
Merrimac	5	158,201	104,156	124	329,023
Methuen	22	3,150,589	1,050,873	1,366	4,821,828
Middleborough	21	1,787,269	772,249	959	3,557,454
Millford	21	2,184,931	797,509	866	3,741,752
Millbury	21	2,638,402	961,884	1,008	5,018,760
Milton	8	132,183	66,939	57	381,659
Montague	13	1,141,531	829,152	991	2,757,070
Natick	18	1,479,860	536,247	480	2,692,074
Needham	26	1,395,823	370,880	440	2,556,030
North Andover	6	2,022,219	1,177,272	1,215	3,949,727
North Attleboro	58	1,668,306	1,665,407	1,714	5,138,046
North Brookfield	4	549,313	291,606	365	1,117,519
Northbridge	8	3,637,980	3,312,816	3,505	9,203,098
Norton	8	304,988	293,873	379	772,699
Norwood	20	6,951,688	2,926,028	2,484	15,593,639
Orange	16	804,530	559,018	689	2,494,995
Oxford	8	772,961	522,637	589	1,660,425
Palmer	15	2,169,479	1,325,716	1,679	4,800,217
Plymouth	16	3,187,910	1,239,273	1,266	7,273,929
Randolph	6	600,901	306,618	328	1,055,686
Raynham	3	49,160	23,158	28	102,008
Reading	15	1,246,397	393,076	317	2,126,110
Rockland	16	2,103,327	898,544	1,071	4,088,429
Saugus	9	158,246	99,443	89	385,256
South Hadley	8	891,586	394,672	404	1,741,848
Southbridge	26	5,304,728	4,453,882	4,470	14,247,389
Spencer	11	2,989,003	1,209,481	1,416	5,283,710

¹ For 132 towns data cannot be presented without disclosing the operations of individual establishments, and in 90 towns there were no manufacturing establishments coming within scope of the census canvass; i. e., with product values in excess of \$5,000.

Table 24. — Continued

TOWNS	Number of Estab- lish- ments	Value of Stock and Materials Used	Amount of Wages Paid during the Year	Average Number of Wage-earners Employed	Value of Products
Stoneham	16	\$417,870	\$220,861	245	\$1,107,517
Stoughton	22	3,035,315	1,202,379	1,343	5,754,423
Swampscott	10	62,764	24,635	23	135,225
Templeton	12	585,987	287,033	351	1,144,725
Townsend	4	241,792	113,666	103	552,526
Uxbridge	8	4,959,364	1,437,237	1,404	7,643,118
Wakefield	33	1,414,508	845,019	985	3,058,484
Walpole	12	8,640,938	1,705,450	1,540	13,142,820
Ware	14	2,601,629	995,180	1,306	4,436,789
Wareham	7	245,849	88,530	86	488,986
Warren	6	1,169,402	506,782	691	2,155,533
Watertown	51	6,318,896	4,622,943	4,521	16,463,191
Webster	18	3,757,720	2,178,974	2,638	7,252,681
Wellesley	8	374,545	195,445	160	753,322
West Springfield	28	4,475,784	2,233,952	2,096	9,822,435
Westborough	11	388,056	198,350	205	896,092
Weymouth	19	2,308,826	906,409	833	4,659,606
Whitman	20	2,836,986	1,286,977	1,243	5,256,818
Winchendon	17	1,257,353	768,631	960	2,478,736
Winchester	17	1,949,164	779,693	651	3,149,603
Winthrop	8	74,048	39,982	40	173,206
Yarmouth	5	15,360	18,211	17	43,518
All other towns ¹	320	39,821,065	21,046,880	22,756	85,260,879

¹ For 132 towns data cannot be presented without disclosing the operations of individual establishments, and in 90 towns there were no manufacturing establishments coming within scope of the census canvass; i. e., with product values in excess of \$5,000.

Metropolitan Boston. — As defined for purposes of the annual census of manufactures in Massachusetts, Metropolitan Boston comprised 14 cities and 29 towns included within a radius of about 15 miles from the State House in Boston. Within this area were located, in 1934, 3,938 manufacturing establishments, in which products valued at \$782,264,772 were manufactured. The average number of wage-earners employed in these establishments during the year was 125,876, and the total amount paid in wages was \$135,570,392. The number of manufacturing establishments in Metropolitan Boston in 1934 constituted 47.2 per cent of the total number (8,336) in the entire State; the value of products manufactured constituted 42.1 per cent of the total value of all products manufactured in the State; and the number of wage-earners was approximately 30 per cent of the total number employed in all manufacturing establishments in the State. Principal data relative to manufactures in Metropolitan Boston for the years 1924 to 1934, inclusive, are presented in Table 25; for each of the 14 cities and 29 towns in Table 26; and for the leading industries in Table 27.

Table 25. — Principal Data Relative to Manufactures in Metropolitan Boston¹, 1924-1934

YEARS	Number of Estab- lish- ments	Capital Invested	Value of Stock and Materials Used	Amount of Wages Paid during the Year	Average Number of Wage-earners Employed	Value of Products
ALL INDUSTRIES						
1924	4,561	\$849,235,200	\$584,512,038	\$230,727,844	\$178,487	\$1,148,260,013
1925	4,511	"	606,378,433	231,857,192	175,801	1,235,875,285
1926	4,577	851,797,589	639,566,767	245,916,443	184,814	1,272,959,199
1927	4,755	"	633,003,950	237,708,229	178,316	1,289,801,723
1928	4,713	897,124,478	648,665,366	235,017,427	174,522	1,278,895,983
1929	4,831	"	688,277,589	248,419,990	182,780	1,409,136,706
1930	4,652	866,181,625	590,738,808	215,334,364	162,699	1,181,391,542
1931	4,536	"	452,641,062	171,567,144	140,074	955,211,023
1932	4,225	674,095,448	337,019,811	124,855,342	114,986	704,875,376
1933	3,962	"	324,572,258	116,591,358	116,145	680,941,992
1934	3,938	644,482,368	396,344,058	135,570,392	125,876	782,264,772

¹ For a list of cities and towns in Metropolitan Boston, see Table 26. In 1929 and thereafter, the towns of Norwood, Stoughton, and Walpole were included in the district.

² Not called for on the questionnaire.

*Table 26. — Principal Data Relative to Manufactures in Metropolitan Boston, 1934:
By Cities and Towns*

MUNICIPALITIES	Number of Estab- lish- ments	Value of Stock and Materials Used	Amount of Wages Paid during the Year	Average Number of Wage-earners Employed	Value of Products
Metropolitan Boston	3,938	\$396,344,058	\$135,570,392	125,876	\$782,264,772
<i>The 14 Cities</i>	<i>3,558</i>	<i>346,399,747</i>	<i>117,974,322</i>	<i>108,919</i>	<i>690,140,120</i>
Boston	2,104	159,223,298	56,101,831	50,627	322,176,950
Cambridge	349	40,666,508	15,530,141	15,418	111,147,538
Chelsea	102	7,805,536	4,028,293	4,166	15,904,010
Everett	101	28,447,151	4,932,621	4,165	42,581,782
Lynn	295	20,634,330	12,885,090	12,251	54,176,645
Malden	94	8,464,042	2,841,990	3,126	17,447,923
Medford	51	3,010,991	962,379	874	5,548,733
Melrose	20	783,565	234,812	240	1,508,241
Newton	54	3,962,523	1,919,560	2,189	9,319,845
Quincy	121	12,699,128	5,748,122	4,164	22,066,866
Revere	17	333,001	187,450	208	698,156
Somerville	129	53,227,372	6,964,827	5,997	69,330,907
Waltham	79	3,704,075	4,047,267	4,078	11,582,790
Woburn	42	3,438,227	1,589,939	1,416	6,649,734
<i>The 29 Towns</i>	<i>380</i>	<i>49,944,311</i>	<i>17,596,070</i>	<i>16,957</i>	<i>92,124,652</i>
Arlington	24	315,451	107,128	104	604,378
Belmont	3	10,682	14,110	14	40,792
Braintree	19	11,606,955	1,378,125	1,276	13,489,632
Brookline	15	383,684	237,555	258	971,138
Canton	19	2,622,198	1,163,708	1,289	6,267,367
Dedham	11	160,650	136,512	146	425,487
Hingham	3	38,697	27,038	25	97,698
Lexington	5	117,846	45,317	41	225,439
Milton	8	132,183	66,939	57	381,659
Needham	26	1,395,823	370,880	440	2,556,030
Norwood	20	6,951,688	2,926,028	2,484	15,593,639
Reading	15	1,246,397	393,076	317	2,126,110
Saugus	9	158,246	99,443	89	385,256
Stoneham	16	417,870	220,861	245	1,107,517
Stoughton	22	3,035,315	1,202,379	1,343	5,754,423
Swampscott	10	62,764	24,635	23	135,225
Wakefield	33	1,414,508	845,019	985	3,058,484
Walpole	12	8,640,938	1,705,450	1,540	13,142,820
Watertown	51	6,318,896	4,622,943	4,521	16,463,191
Wellesley	8	374,545	195,445	160	753,322
Weymouth	19	2,308,826	906,409	833	4,659,606
Winchester	17	1,949,164	779,693	651	3,149,603
Winthrop	8	74,048	39,982	40	173,206
6 other towns ¹	7	206,937	87,395	76	562,630

¹ Includes two towns (Cohasset and Nahant) in which there were no manufacturing establishments, and four towns (Dover, Hull, Weston, and Westwood) for which data cannot be shown separately without disclosing the operations of individual establishments.

Table 27. — *Principal Data Relative to the Leading Manufacturing Industries in Metropolitan Boston, 1934*

PRINCIPAL INDUSTRIES (Arranged in the order of value of products)	Number of Estab- lish- ments	Value of Stock and Materials Used	Amount of Wages Paid during the Year	Average Number of Wage-earners Employed	Value of Products
Metropolitan Boston	3,938	\$396,344,058	\$135,570,392	125,876	\$782,264,772
Printing and publishing ¹	406	15,057,526	13,129,945	8,455	57,635,017
Bread and other bakery products	480	21,224,175	8,001,749	7,046	43,585,344
Meat packing, wholesale	17	30,611,098	2,779,238	2,154	37,053,388
Boots and shoes, other than rubber	93	16,445,270	10,474,286	12,006	34,446,000
Electrical machinery, ap- paratus, and supplies ²	47	9,469,701	6,924,697	6,326	32,315,482
Confectionery	81	12,801,229	4,317,077	5,636	23,636,779
Clothing:					
Men's ³	143	11,055,445	4,638,939	4,704	21,075,519
Women's	208	10,137,892	3,938,867	4,333	19,267,650
Boot and shoe cut stock and findings, not made in boot and shoe factories	106	13,081,420	2,954,487	2,916	20,090,916
Foundry and machine-shop products	145	7,132,040	5,002,481	4,257	19,786,035
Rubber goods, other than tires, inner tubes, and boots and shoes	29	7,950,977	2,992,867	3,263	17,191,028
Knit goods	49	8,303,298	2,555,762	3,139	13,866,207
Boxes, paper	46	7,603,491	2,595,885	2,623	13,794,175
Leather: Tanned, curried, and finished	30	7,864,305	3,468,900	3,148	13,337,918
Druggists' preparations, in- cluding patent medicines and compounds	46	4,354,976	826,581	786	11,549,564
Dyeing and finishing tex- tiles	19	8,092,724	1,111,352	1,164	11,463,062
Other industries ⁴	1,993	205,158,491	59,857,279	53,920	392,170,688

¹ Exclusive of publishing establishments which do no printing.² Includes radio apparatus, which, separately tabulated, registered 6 establishments with product value of \$2,666,657.³ Includes work clothing.⁴ Includes data for all industries for which the value of products in 1934 was less than \$10,000,000 as well as such industries as soap; sugar refining; petroleum refining; motor vehicles; shipbuilding; boots and shoes, rubber; cutlery and edge tools; and coke-oven products, the data for which cannot be given separately without disclosing the operations of individual establishments.

Counties. — Principal data having reference to manufactures in each of the counties of the state in 1934 are presented in Table 28. Based either on value of products or average number of wage-earners, Middlesex County led with \$402,004,617 or 21.7 per cent of the total of the State, — \$1,855,598,291. Next in the order named, on the basis of product values, were Suffolk, Worcester, Essex, and Bristol Counties, — while on the basis of wage-earners, the important counties succeeded each other, as follows: Middlesex, Worcester, Essex, Bristol, and Suffolk. The average number of wage-earners in these counties in 1934 ranged from 55,041 in Suffolk County to 73,355 in the County of Middlesex.

Table 28. — *Principal Data Relative to the Manufacturing Industries in Massachusetts: By Counties, 1934*

COUNTIES	Number of Estab- lish- ments	Value of Stock and Materials Used	Amount of Wages Paid during the Year	Average Number of Wage-earners Employed	Value of Products
The State	8,336	\$924,075,172	\$408,617,489	423,933	\$1,855,598,291
Barnstable	21	161,904	99,062	98	390,498
Berkshire	164	25,107,722	13,057,084	14,791	52,818,221
Bristol	773	92,721,926	50,630,380	61,977	179,470,954
Dukes	1			1	
Essex	1,145	124,906,723	63,185,548	66,375	254,482,497
Franklin	89	6,579,593	3,742,251	4,063	16,494,571
Hampden	572	69,197,950	38,163,819	38,232	155,703,611
Hampshire	108	13,182,337	5,132,575	5,868	24,200,630
Middlesex	1,468	209,999,446	71,625,270	73,355	402,004,617
Nantucket and Dukes ¹	9	43,682	38,003	31	152,586
Norfolk	367	59,787,066	20,195,223	18,237	104,598,414
Plymouth	363	33,672,199	15,502,056	16,843	67,032,139
Suffolk	2,231	167,435,883	60,357,556	55,041	338,952,322
Worcester	1,026	121,278,741	66,888,662	69,022	259,297,231

¹ Five establishments located in Dukes County are included with the four in Nantucket County in order to avoid disclosing the operations of individual establishments.

Principal Industries. — A summary of the data relative to the 16 principal manufacturing industries in Massachusetts for the years, 1924-1934, inclusive, arranged in the order of value of products in 1934, is presented in Table 29. The total value of products of the 16 principal industries specified was \$1,021,740,443, and constituted 55.1 per cent of the aggregate value of all products (\$1,855,598,291) manufactured in Massachusetts during that year.

Table 29. — Summary of Data Relative to Manufactures in Massachusetts:
By Principal Industries, 1924-1934¹

YEARS	Number of Establishments	Value of Stock and Materials Used	Amount of Wages Paid during the Year	Average Number of Wage-earners Employed	Value of Products
All Industries					
1924	10,174	\$1,629,342,134	\$711,812,104	589,364	\$3,126,137,145
1925	10,027	1,794,643,051	716,155,593	591,438	3,426,617,326
1926	9,903	1,790,611,294	738,208,510	602,343	3,419,814,877
1927	10,037	1,678,812,411	705,929,549	578,068	3,317,851,888
1928	9,971	1,663,155,564	670,063,291	540,927	3,224,227,651
1929	9,872	1,681,432,788	694,805,312	557,494	3,392,162,237
1930	9,586	1,333,317,227	573,838,044	481,449	2,676,387,256
1931	9,305	1,015,093,739	474,189,202	434,441	2,157,450,449
1932	8,778	718,347,675	334,358,550	350,521	1,521,752,939
1933	8,145	800,611,332 ²	354,523,634	398,583	1,668,733,387
1934	8,336	924,075,172 ²	408,617,489	423,933	1,855,598,291
Boots and Shoes, Other than Rubber					
1924	567	120,976,254	72,462,742	62,969	246,897,275
1925	537	119,764,801	65,496,971	57,405	240,943,504
1926	508	121,665,003	70,444,841	59,738	244,177,601
1927	469	120,353,570	65,282,193	55,986	237,516,655
1928	453	126,778,246	63,871,277	55,478	238,884,158
1929	436	124,024,880	64,205,152	55,093	241,587,864
1930	420	95,336,095	50,896,764	49,105	185,072,323
1931	397	79,519,951	45,679,225	47,664	160,666,398
1932	392	60,709,609	36,843,238	43,265	126,222,124
1933	389	65,591,230	36,559,127	46,739	128,073,952
1934	347	68,463,192	39,444,814	45,951	133,985,336
Boot and Shoe Cut Stock and Findings (Not made in boot and shoe factories)					
1924	381	42,123,956	7,269,733	6,536	60,337,334
1925	407	45,012,775	7,995,409	6,991	66,077,971
1926	361	52,775,368	8,973,167	7,806	73,795,554
1927	393	60,126,412	8,830,087	7,763	84,124,051
1928	364	63,242,637	8,286,694	7,615	83,979,422
1929	361	56,167,055	8,391,863	7,658	78,200,992
1930	349	42,855,725	7,259,574	6,917	59,345,418
1931	351	31,775,145	6,363,401	6,463	46,348,503
1932	334	22,829,247	5,161,390	5,817	35,280,809
1933	306	23,322,043	5,827,882	6,989	38,394,504
1934	301	24,498,170	6,482,718	7,007	39,540,231
Woolen and Worsted Goods					
1924	190	171,426,748	65,563,390	54,277	280,002,109
1925	187	200,289,254	64,931,507	54,876	309,528,290
1926	180	187,787,996	61,952,399	54,638	295,175,084
1927	174	163,149,995	58,035,387	51,064	268,835,806
1928	171	145,440,485	51,882,279	45,248	234,206,586
1929	156	146,020,898	52,304,583	45,673	242,898,460
1930	145	92,027,443	39,245,500	35,104	156,943,782
1931	128	86,659,519	37,436,905	37,221	147,701,378
1932	116	49,305,061	22,708,245	28,593	87,814,050
1933	111	81,395,142	33,072,129	39,808	148,798,542
1934	114	73,618,559	30,646,684	35,991	125,701,633
Cotton Goods, excluding Cotton Small Wares					
1924	178	175,089,768	86,795,081	89,095	296,831,284
1925	178	200,972,528	91,812,779	96,182	345,864,097
1926	173	166,821,709	88,865,550	91,466	292,063,441
1927	163	145,630,938	88,089,667	90,875	284,706,007
1928	153	120,815,771	61,215,058	65,192	216,997,848
1929	135	125,441,636	65,556,859	70,788	233,618,009
1930	134	79,531,622	47,363,957	53,745	151,834,379
1931	120	53,329,684	38,868,889	46,990	114,707,445
1932	105	30,030,280	22,698,692	32,464	68,040,258
1933	103	51,189,247 ²	31,110,036	45,418	98,602,761
1934	105	57,690,978 ²	36,473,572	49,297	111,247,620

¹ In making comparisons for the several years of the money values presented in this summary, due allowance should be made for price fluctuations from year to year. The values of products manufactured do not necessarily represent the relative volume of goods produced in the several years.

² Includes the processing taxes.

Table 29.—Continued

YEARS	Number of Establishments	Value of Stock and Materials Used	Amount of Wages Paid during the Year	Average Number of Wage-earners Employed	Value of Products
<i>Printing and Publishing</i>					
1924	756	\$30,323,839	\$23,701,120	13,908	\$93,698,513
1925	951 ¹	34,561,352	24,609,306	14,231	125,176,183
1926	748	34,035,042	25,436,679	14,713	107,283,046
1927	1,022 ¹	35,368,221	25,482,123	14,382	131,975,238
1928	821	34,795,664	26,594,305	14,634	112,243,252
1929	1,000 ¹	35,245,669	28,115,167	15,198	140,481,332
1930	799	32,050,850	27,077,682	15,051	111,526,855
1931	963 ¹	26,416,073	23,456,179	13,224	111,395,181
1932	767	20,617,212	19,667,336	12,022	77,732,521
1933	829 ¹	17,238,002	16,336,090	11,359	81,164,261
1934	723	19,963,785	18,835,230	12,406	78,773,082
<i>Electrical Machinery, Apparatus, and Supplies</i>					
1924	130	48,721,722	33,227,577	24,523	129,905,665
1925	116	43,794,331	35,109,393	25,065	147,056,901
1926	128	64,534,132	39,142,134	27,899	177,148,280
1927	122	42,197,890	33,903,793	24,759	139,348,725
1928	120	56,874,825	33,972,583	24,788	156,081,762
1929	106	64,323,352	41,011,734	28,844	184,786,944
1930	111	45,095,735	31,948,815	24,217	120,334,662
1931 ²	102	31,777,549	22,751,703	20,055	104,325,847
1932 ²	103	18,228,170	12,254,949	13,571	53,643,578
1933 ²	84	19,586,736	13,263,342	14,285	52,628,350
1934 ²	88	23,723,572	17,502,155	17,044	67,874,375
<i>Dyeing and Finishing Textiles</i>					
1924	66	47,812,253	14,145,036	12,764	76,968,958
1925	65	87,585,678	16,098,858	13,872	119,109,701
1926	65	69,357,890	15,974,822	13,772	102,814,471
1927	68	51,434,428	16,229,352	13,826	84,459,666
1928	66	52,048,921	15,738,360	13,629	83,707,199
1929	67	53,034,427	16,853,664	14,450	93,148,770
1930	65	50,849,268	14,838,020	13,081	75,853,910
1931	70	47,794,925	14,926,387	13,060	76,819,045
1932	71	34,010,823	10,377,674	11,118	54,353,966
1933	65	32,488,442	10,366,906	11,178	54,714,528
1934	73	45,512,362	12,506,124	12,942	67,293,143
<i>Bread and other Bakery Products</i>					
1924	1,072	32,793,242	12,022,863	9,200	65,723,363
1925	1,031	36,517,214	11,390,333	8,429	68,845,944
1926	1,090	38,573,698	11,558,473	8,697	74,014,253
1927	1,044	37,101,802	11,028,342	8,473	73,706,221
1928	1,108	38,297,898	11,351,600	8,770	76,006,262
1929	1,077	39,664,130	13,700,195	10,413	80,270,302
1930	1,132	36,656,100	13,036,847	10,041	78,462,469
1931	1,119	29,587,755	12,753,731	10,079	67,805,420
1932	1,111	25,236,168	10,643,686	9,315	59,488,548
1933	1,021	25,972,865	11,907,157	10,797	55,568,784
1934	1,075	32,983,792	12,889,102	11,393	67,094,325
<i>Clothing, Men's and Women's, Including Work Clothing</i>					
1924	486	34,899,421	13,405,639	11,549	63,904,828
1925	439	33,158,905	12,023,478	10,665	61,187,773
1926	483	36,284,848	14,263,815	12,115	68,554,055
1927	472	37,713,123	15,131,382	13,163	72,296,725
1928	500	37,087,769	14,354,468	13,310	69,021,128
1929	500	41,841,471	15,087,955	13,174	78,174,045
1930	489	35,613,636	14,398,266	13,540	65,951,764
1931	487	31,017,083	13,216,215	14,052	59,920,324
1932	474	23,706,198	9,564,654	11,874	44,324,186
1933	412	25,706,754	9,503,081	12,611	47,726,650
1934	442	29,204,071	12,065,074	13,984	53,894,126
<i>Leather, Tanned, Curried, and Finished</i>					
1924	123	42,867,178	15,023,961	11,010	70,603,298
1925	118	42,430,939	14,178,183	10,438	70,708,050
1926	123	40,698,690	14,016,402	10,241	66,600,352
1927	115	47,860,959	14,587,638	10,768	77,649,457
1928	124	53,764,692	14,531,789	10,975	82,268,326
1929	113	60,240,934	14,206,501	10,707	88,348,403
1930	107	41,890,582	11,645,166	8,953	63,591,977
1931	98	29,966,431	10,697,504	8,657	50,051,338
1932	101	19,253,879	8,651,070	7,932	35,608,824
1933	100	27,193,279	11,077,713	9,980	48,630,000
1934	99	30,878,912	11,505,967	10,042	50,131,406

¹ The census for the years 1925, 1927, 1929, 1931, and 1933 included certain publishing establishments not canvassed in the other years specified, and data for these years, therefore, are not strictly comparable with corresponding data for the other years specified.

² Includes radio apparatus, heretofore tabulated with this industry and retained here for purposes of comparison. Presented separately, in 1934, radio apparatus would register 14 establishments with product value of \$8,896,302.

Table 29.—Continued

YEARS	Number of Establishments	Value of Stock and Materials Used	Amount of Wages Paid during the Year	Average Number of Wage-earners Employed	Value of Products
<i>Foundry and Machine-Shop Products</i>					
1924	539	\$37,993,215	\$32,473,734	22,414	\$106,461,283
1925	500	31,046,164	28,919,791	19,541	90,638,434
1926	502	34,479,344	30,851,687	20,419	99,321,009
1927	496	30,759,703	30,059,274	19,898	94,149,409
1928	475	32,606,432	30,447,463	19,803	99,613,068
1929	465	36,893,962	32,969,609	21,243	114,965,036
1930	442	28,219,034	27,582,822	18,492	88,162,402
1931	414	17,806,400	18,841,627	14,748	60,143,267
1932	388	11,685,917	12,556,361	10,179	36,472,363
1933	335	11,043,569	12,084,953	11,022	38,524,134
1934	360	15,524,218	15,004,410	12,301	49,352,674
<i>Paper and Wood Pulp</i>					
1924	81	53,194,877	17,047,879	13,423	90,146,594
1925	84	54,854,405	16,424,005	12,915	90,126,831
1926	83	56,818,516	17,467,461	13,205	98,598,943
1927	83	51,815,477	15,904,292	12,368	93,177,974
1928	84	53,105,186	16,420,703	12,602	93,939,888
1929	76	50,091,469	16,648,893	12,361	95,084,573
1930	76	41,204,938	14,881,473	11,603	78,339,273
1931	77	27,898,672	11,960,645	10,652	58,148,375
1932	75	19,304,723	8,901,610	9,382	39,335,415
1933	68	19,193,695	8,212,224	9,513	40,577,557
1934	73 ¹	23,021,908	9,591,727	10,071	46,635,725
<i>Meat Packing, Wholesale</i>					
1924	32	46,832,366	4,679,275	3,506	56,799,375
1925	33	52,620,735	4,121,768	3,292	60,710,531
1926	28	54,604,670	3,759,969	3,000	63,220,783
1927	40	51,139,522	4,127,491	3,191	58,796,506
1928	37	54,604,066	3,855,033	2,988	63,509,485
1929	43	56,599,409	3,572,432	2,594	64,354,688
1930	31	51,030,796	3,435,693	2,530	59,425,738
1931	31	32,764,048	2,871,319	2,123	39,704,308
1932	29	22,994,226	2,547,086	2,165	29,408,410
1933	26	22,727,714	2,555,707	2,358	30,181,196
1934	26	33,793,756 ²	3,324,627	2,615	41,283,296
<i>Rubber Goods, including Rubber Tires and Inner Tubes³</i>					
1924	58	47,010,344	13,393,684	10,406	84,681,207
1925	52	61,611,753	13,904,175	10,740	108,594,705
1926	56	71,670,965	13,648,767	10,444	110,305,176
1927	64	56,715,715	13,298,241	10,364	97,717,724
1928	68	53,136,600	13,714,866	10,552	98,672,751
1929	62	44,604,202	12,400,228	9,764	76,439,857
1930	65	33,032,734	10,459,597	8,658	62,870,682
1931	60	19,928,837	7,758,324	6,728	46,371,115
1932	58	14,840,426	5,778,272	6,347	33,351,480
1933	56	17,518,009	6,203,983	6,843	35,953,802
1934	52	18,903,718	6,449,584	6,921	36,265,951
<i>Textile Machinery and Parts</i>					
1924	129	14,986,290	18,352,490	14,666	50,253,757
1925	123	16,584,208	17,769,454	13,687	51,411,150
1926	130	15,333,814	16,786,043	12,623	47,739,905
1927	119	15,008,418	16,242,087	12,009	46,865,937
1928	119	12,350,981	13,651,765	10,399	39,082,682
1929	111	12,467,673	14,233,661	10,597	41,202,970
1930	109	8,423,447	10,512,566	8,602	27,033,415
1931	102	6,791,520	8,865,356	7,527	24,090,354
1932	101	4,197,545	5,153,252	5,197	13,635,758
1933	99	7,477,918	7,987,840	7,972	25,143,027
1934	104	7,851,179	9,375,405	8,788	26,658,712
<i>Knit Goods</i>					
1924	88	20,450,911	9,443,959	9,863	38,487,391
1925	88	25,902,556	9,715,424	10,551	46,386,519
1926	92	22,362,814	9,512,858	10,088	44,060,059
1927	93	22,315,903	9,339,035	9,660	43,936,724
1928	90	21,070,158	9,162,848	9,092	40,165,755
1929	86	20,401,873	8,945,286	8,817	41,050,135
1930	80	16,981,448	7,878,614	8,133	34,479,056
1931	70	14,997,853	6,765,890	7,637	29,460,966
1932	66	11,560,929	5,306,107	6,772	22,160,166
1933	70	13,398,553	5,524,729	7,680	25,549,661
1934	77	14,423,617	6,292,813	7,933	26,008,808

¹ Includes seven establishments operated under a single management.² Includes the processing tax.³ Exclusive of rubber boots and shoes.

Table 30. — *Power Used in Manufactures: 1920-1934, inclusive.*
All Industries, Combined

YEARS ¹	TOTALS	PRIMARY HORSEPOWER			Electric Horsepower Generated in Establish- ment Reporting	
		OWNED		PURCHASED		
		Steam Engines and Turbines	Internal Combustion Engines	Water Wheels and Turbines		Electric
1920 . .	1,723,717	940,136	10,374	181,550	591,657	453,083
1922 . .	1,790,717	924,978	10,010	176,639	679,090	503,354
1923 . .	1,931,787	925,490	16,827	189,105	800,365	545,580
1924 . .	1,913,297	938,525	9,209	182,329	783,234	558,703
1925 . .	2,021,917	935,825	11,545	176,934	897,613	568,593
1926 . .	2,015,820	935,266	8,739	177,665	894,150	575,044
1927 . .	2,071,766	919,951	8,843	165,019	977,953	557,224
1928 . .	2,054,661	857,168	7,970	153,323	1,036,200	530,811
1929 . .	2,110,932	842,078	9,339	140,390	1,119,125	486,545
1930 . .	2,015,403	760,062	11,249	138,129	1,105,963	534,853
1932 . .	1,840,713	645,436	6,124	126,190	1,062,963	475,702
1934 . .	1,840,017	607,760	7,329 ²	126,012	1,098,916	482,820

¹ For the years 1921, 1931, and 1933 the inquiry concerning power was not included on the questionnaire

² Includes seven Diesel engines noted for the first time in 1934.

CHARTS

Plate 1

TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID IN
MANUFACTURING IN MASSACHUSETTS, 1925-1935

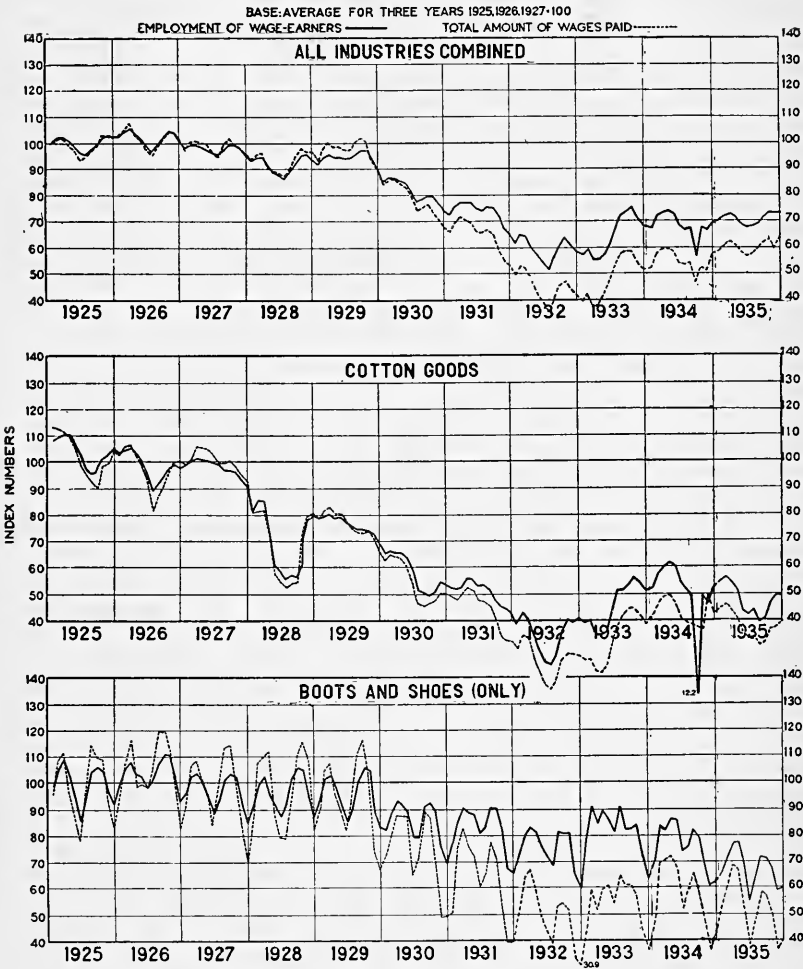


Plate 2

TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID IN MANUFACTURING IN MASSACHUSETTS, 1925-1935 (Continued)

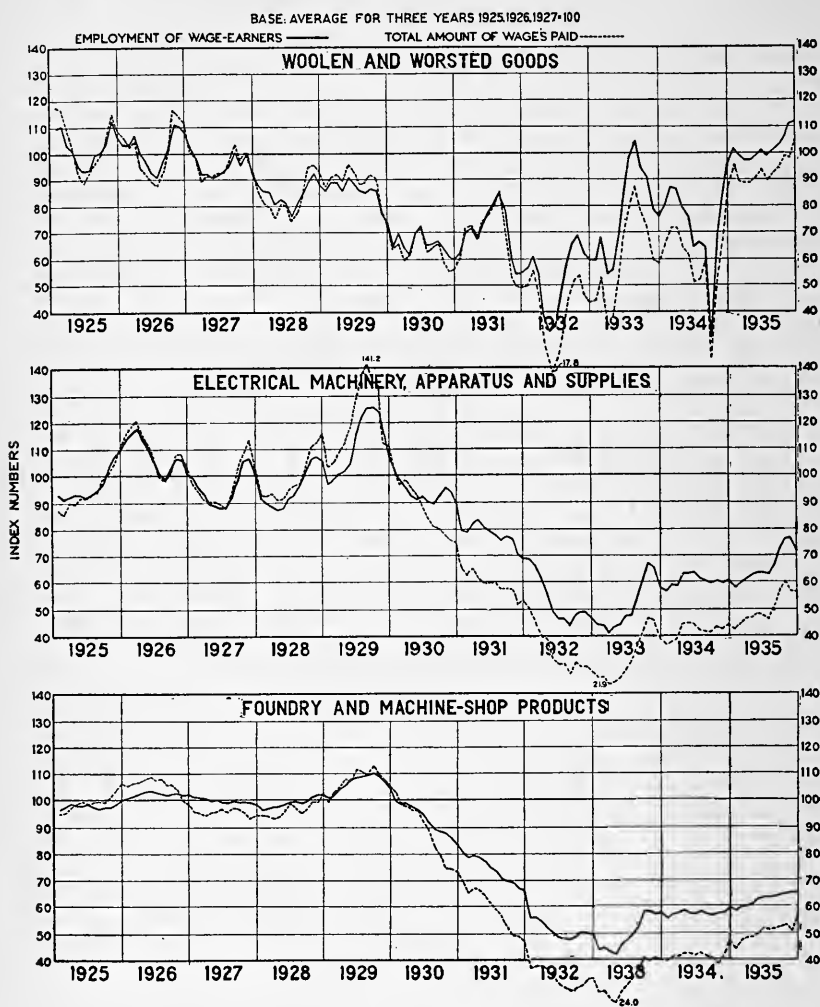


Plate 3

TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID IN MANUFACTURING IN MASSACHUSETTS, 1925-1935 (Continued)

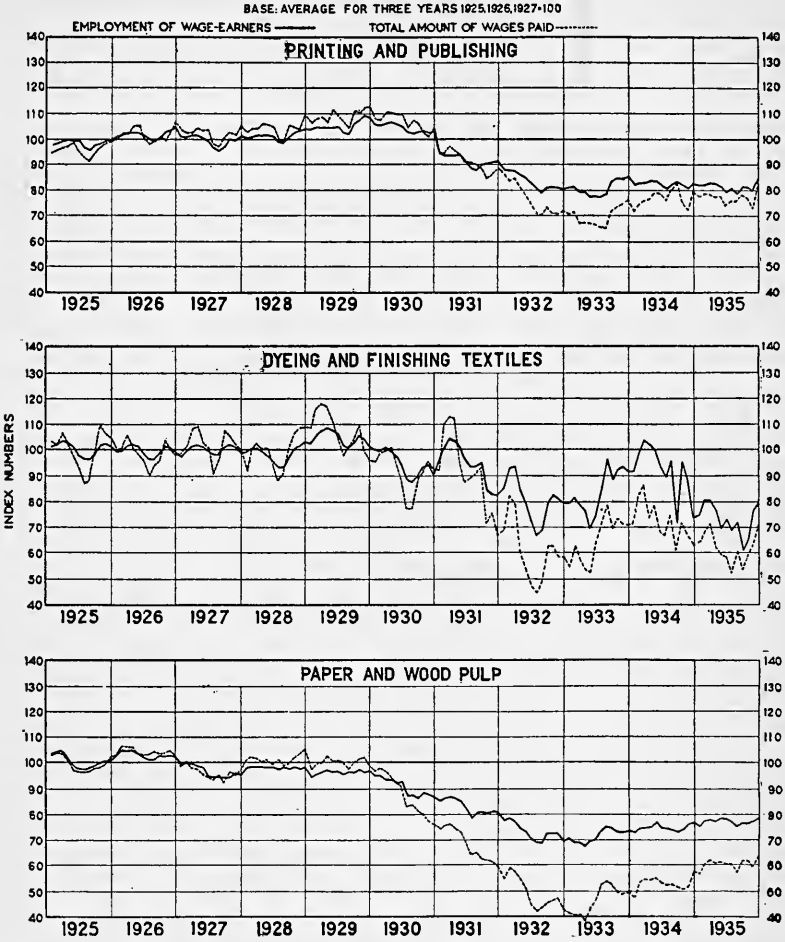


Plate 4

TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID IN MANUFACTURING IN MASSACHUSETTS, 1925-1935 (Continued)

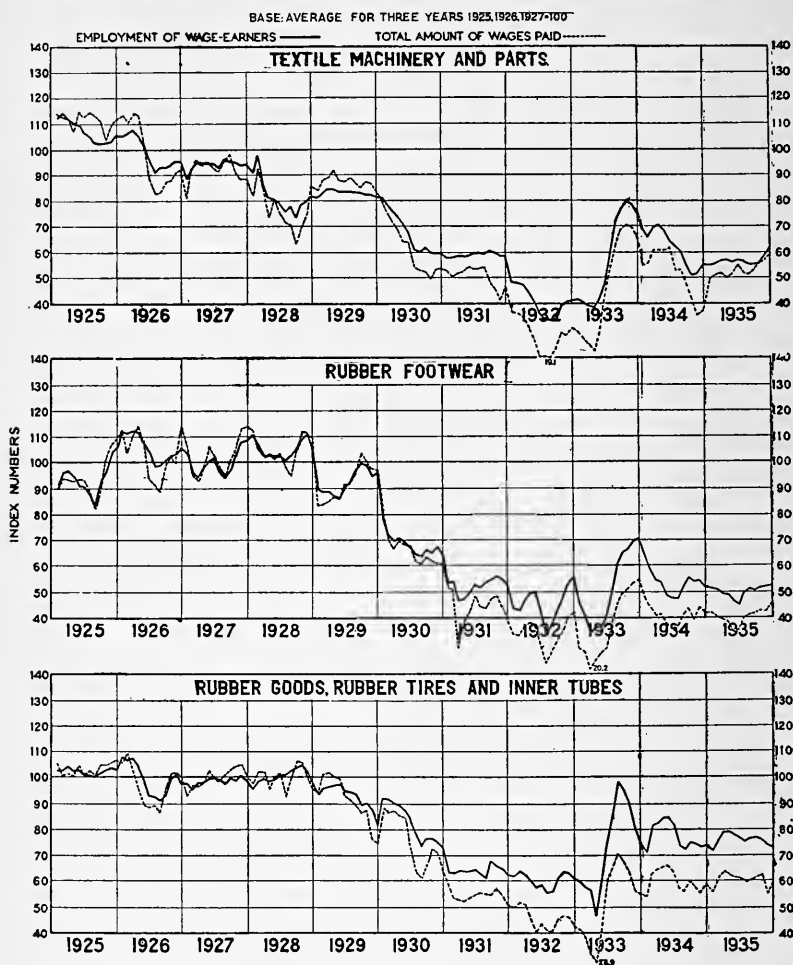


Plate 5

TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID IN MANUFACTURING IN MASSACHUSETTS, 1925-1935 (Continued)

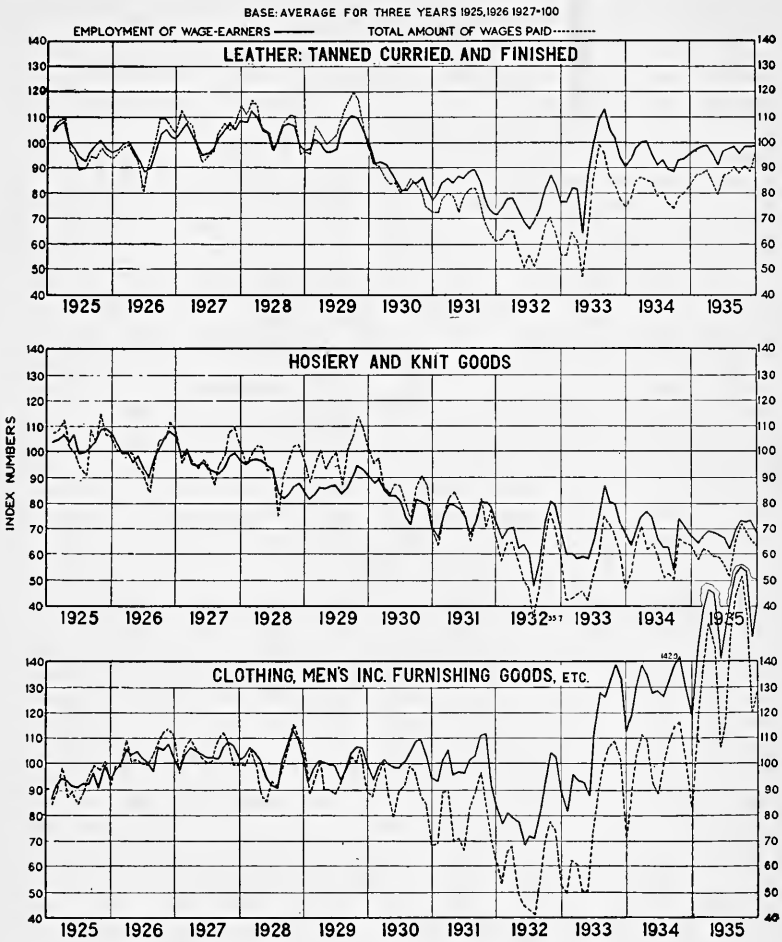


Plate 6

TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID IN MANUFACTURING IN MASSACHUSETTS, 1925-1935 (Continued)

BASE: AVERAGE FOR THREE YEARS 1925, 1926, 1927=100

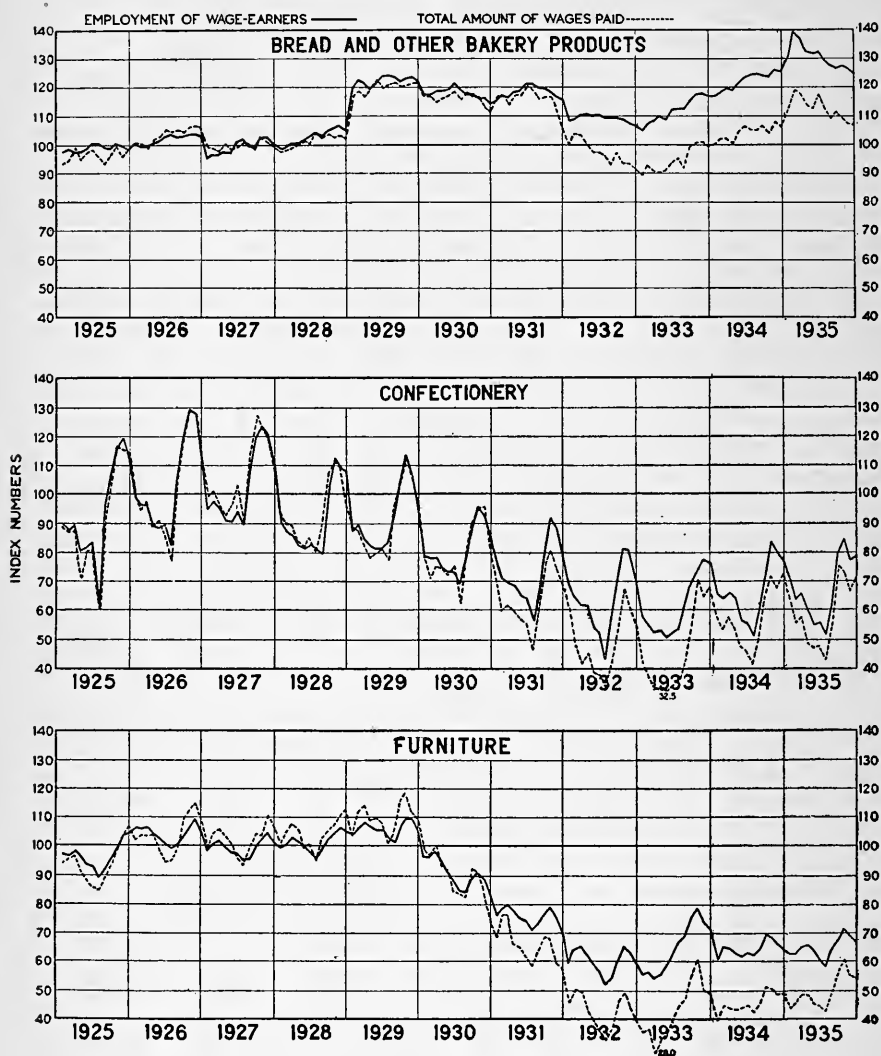


Plate 7

TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID IN MANUFACTURING IN MASSACHUSETTS, 1925-1935 (Concluded)

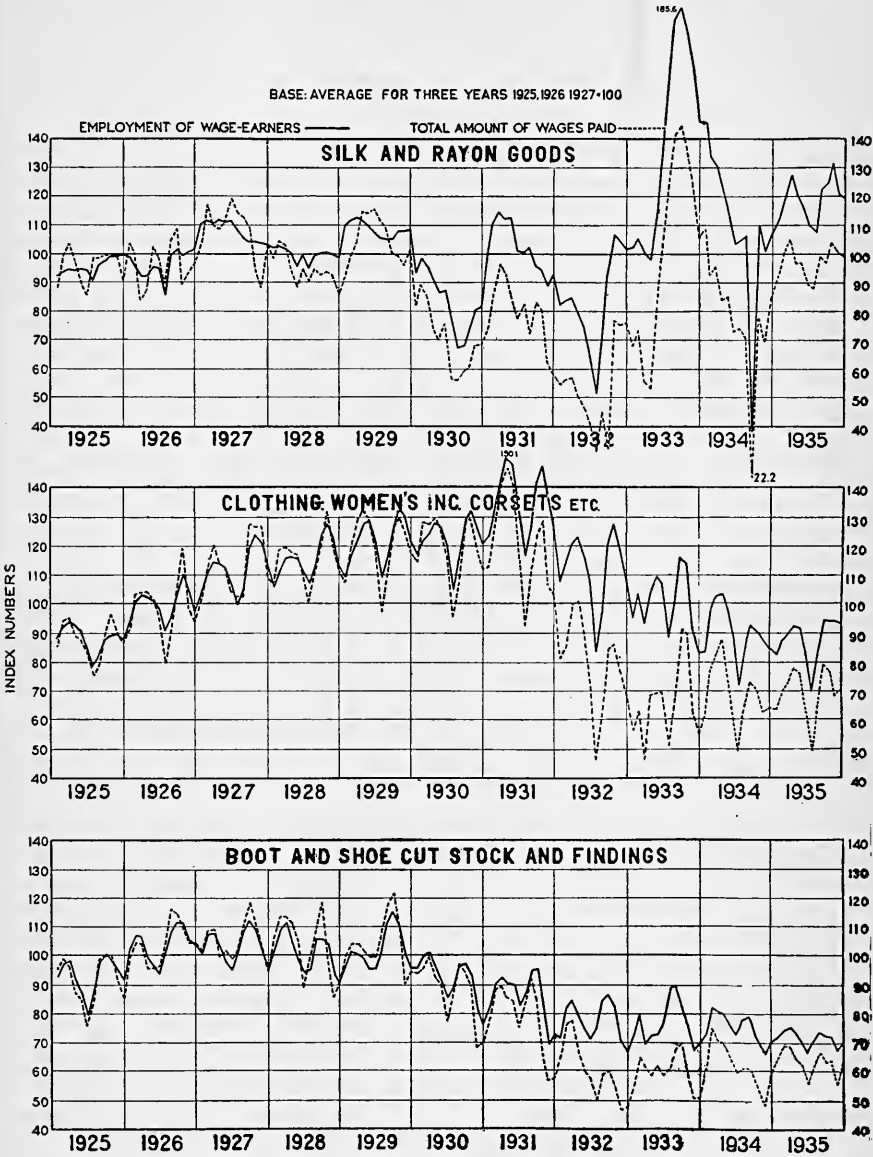


Plate 8

TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID IN MANUFACTURING IN 15 LEADING INDUSTRIAL CITIES IN MASSACHUSETTS: BY MONTHS, 1934-1935

BASE-AVERAGE FOR THREE YEARS 1925, 1926, 1927=100

EMPLOYMENT——— AMOUNT PAID IN WAGES-----

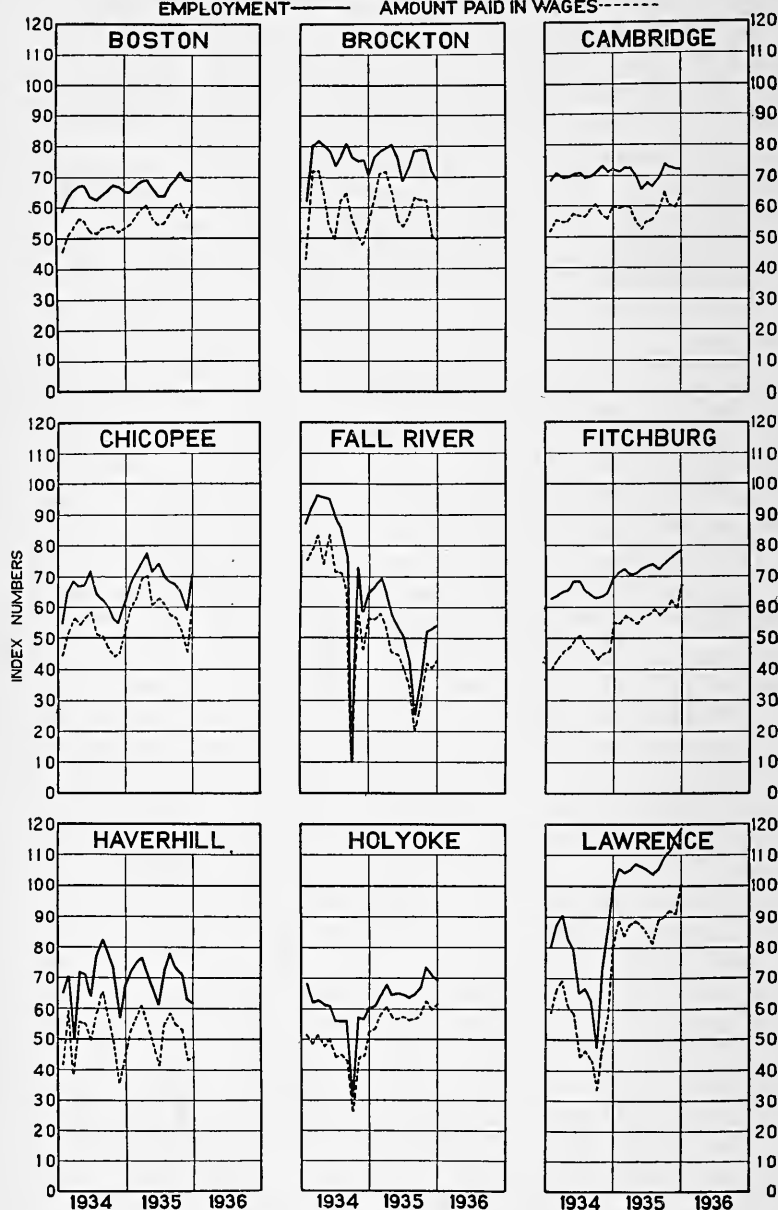


Plate 9

TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID IN MANUFACTURING IN 15 LEADING INDUSTRIAL CITIES IN MASSACHUSETTS: BY MONTHS, 1934-1935 (Concluded)

BASE: AVERAGE FOR THREE YEARS 1925, 1926, 1927=100

EMPLOYMENT—— AMOUNT PAID IN WAGES-----

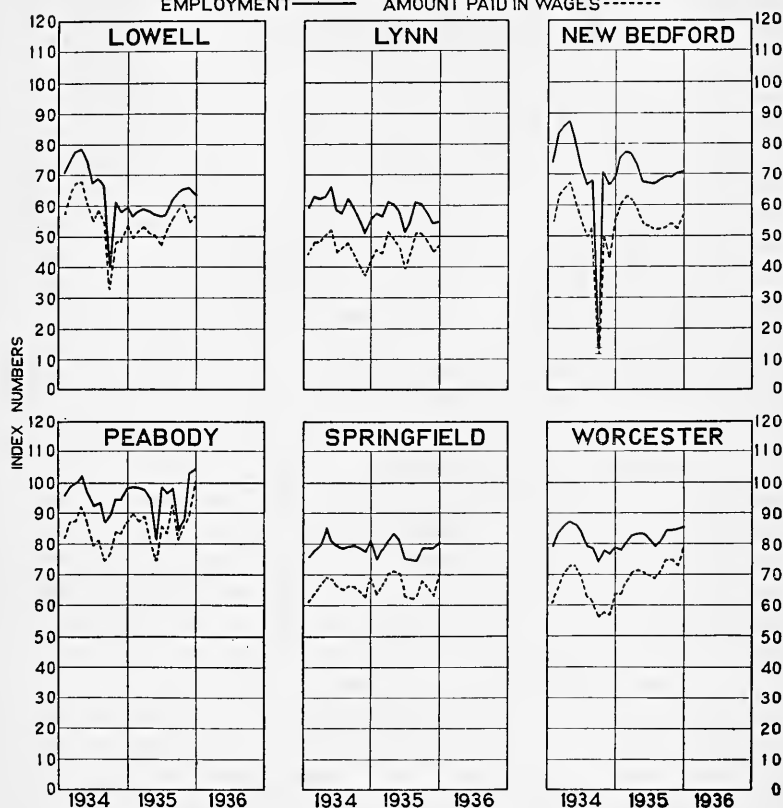


Plate 10

TRENDS OF EMPLOYMENT IN WHOLESALE AND RETAIL TRADE
IN MASSACHUSETTS: BY MONTHS, SEPTEMBER, 1931-
DECEMBER, 1935

BASE: SEPTEMBER 1931 100

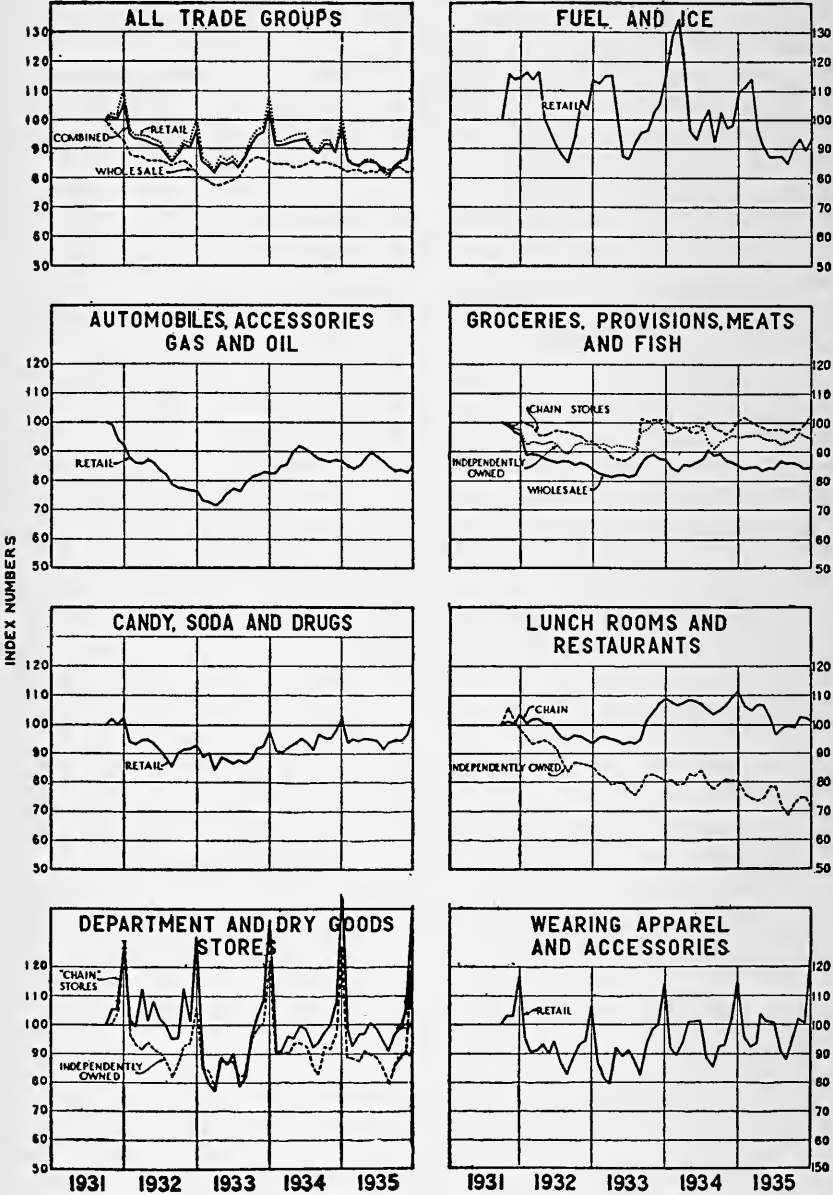


Plate 11

TRENDS OF TOTAL WAGES PAID IN WHOLESALE AND RETAIL TRADE IN MASSACHUSETTS, SEPTEMBER, 1931- DECEMBER, 1935

BASE: SEPTEMBER 1931=100

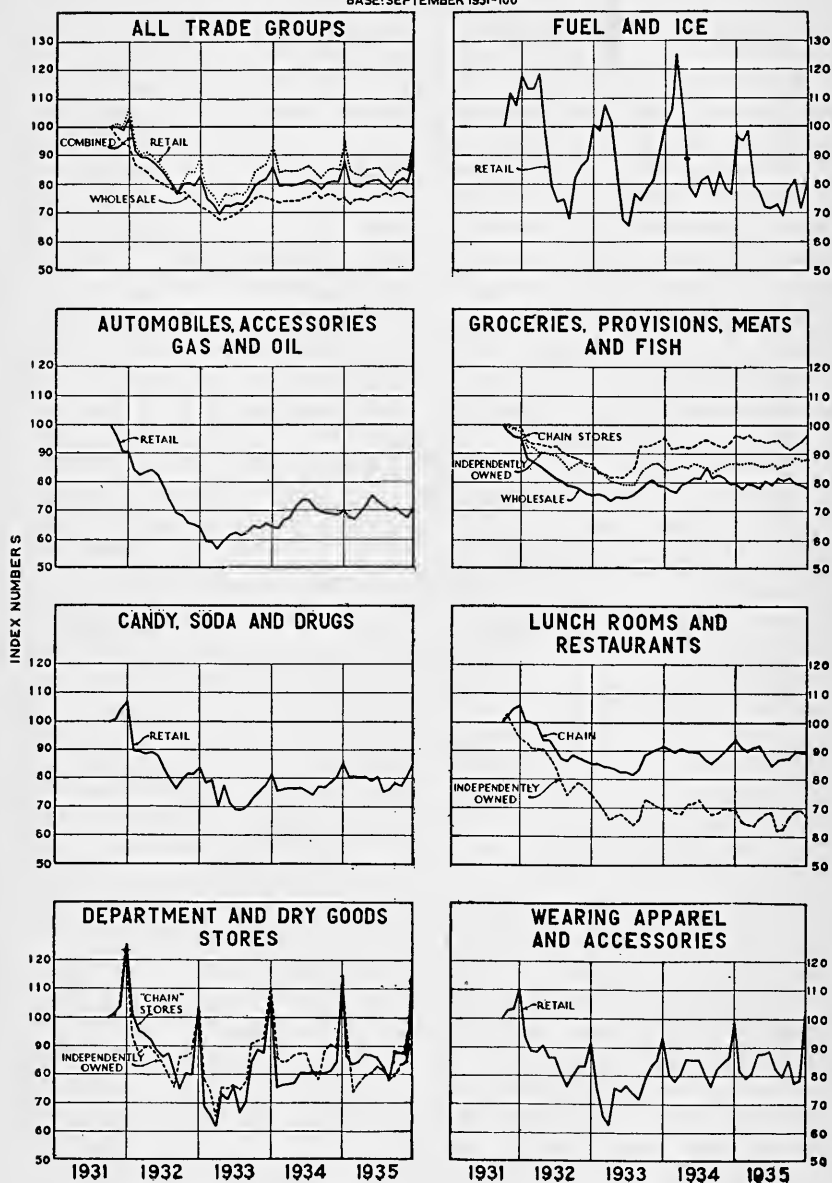


Plate 12

TRENDS OF EMPLOYMENT, TOTAL WAGES PAID, AND MAN-HOURS WORKED IN BUILDING CONSTRUCTION: BY MONTHS; APRIL, 1927-DECEMBER, 1935

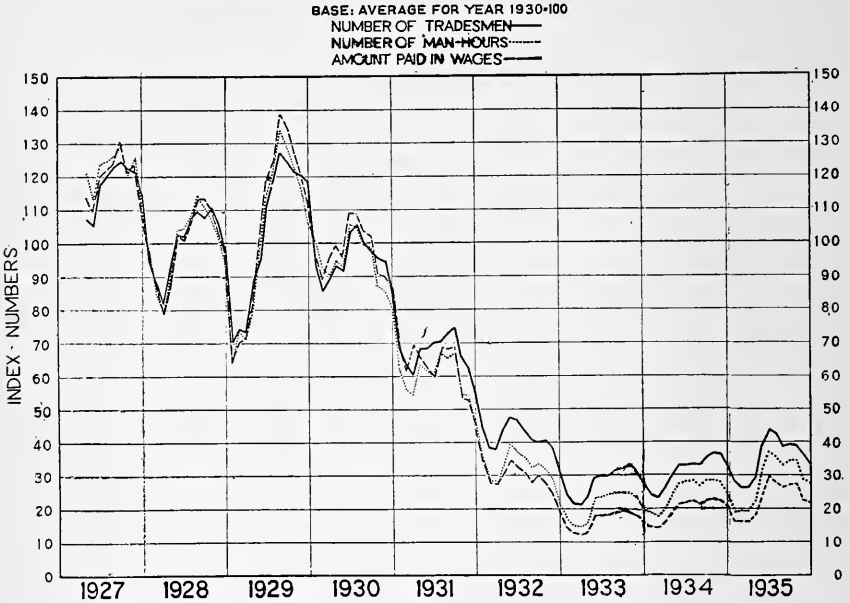


Plate 13

TREND OF PROSPECTIVE BUILDING IN 55 MUNICIPALITIES IN MASSACHUSETTS, ALL CLASSES OF PROJECTS COMBINED: BY MONTHS, 1927-1935

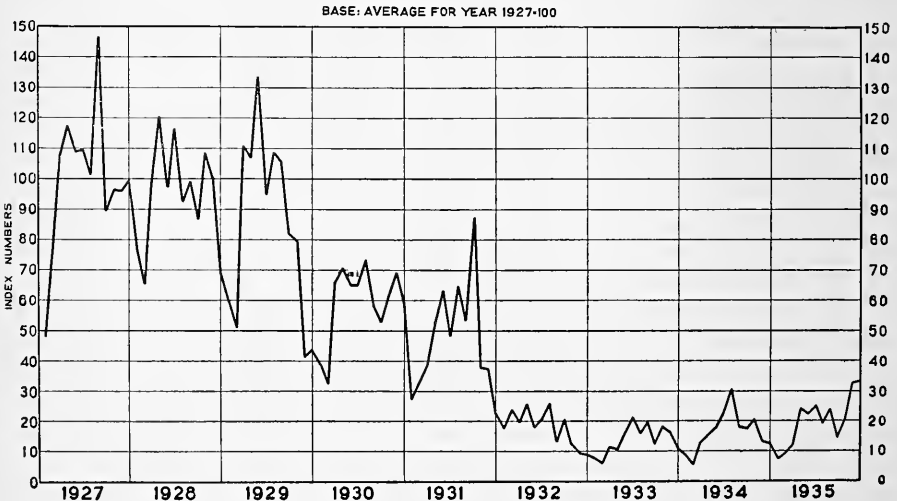


Plate 14

TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID BY
PUBLIC UTILITY COMPANIES, 1930-1935: BY MONTHS

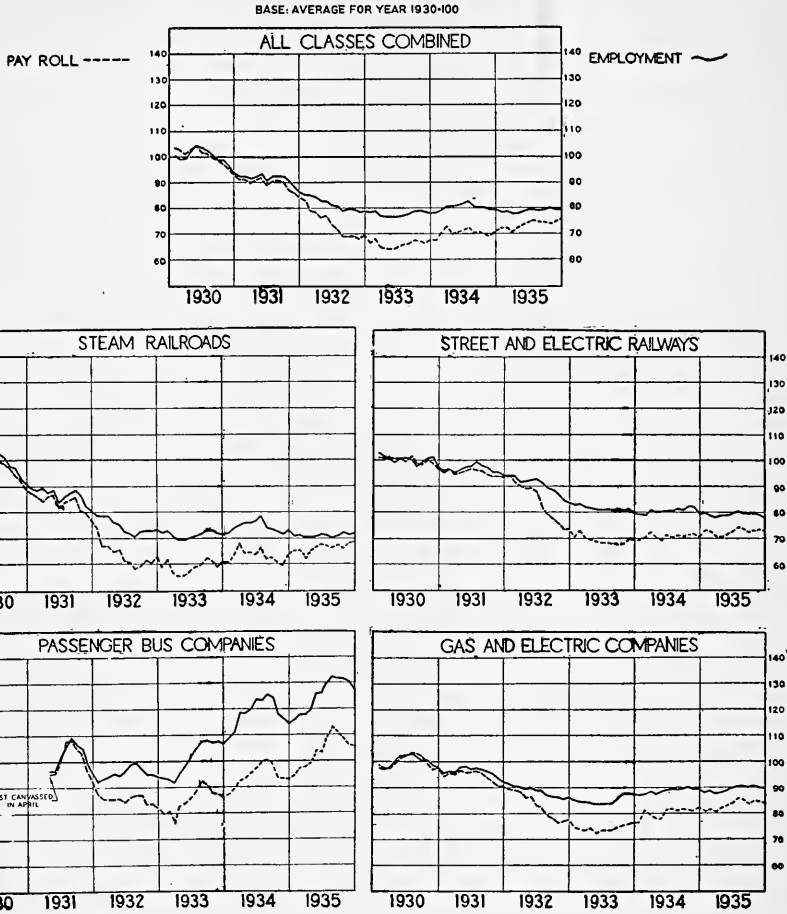


Plate 15

TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID IN MUNICIPALITIES: BY MONTHS, SEPTEMBER, 1931- DECEMBER, 1935

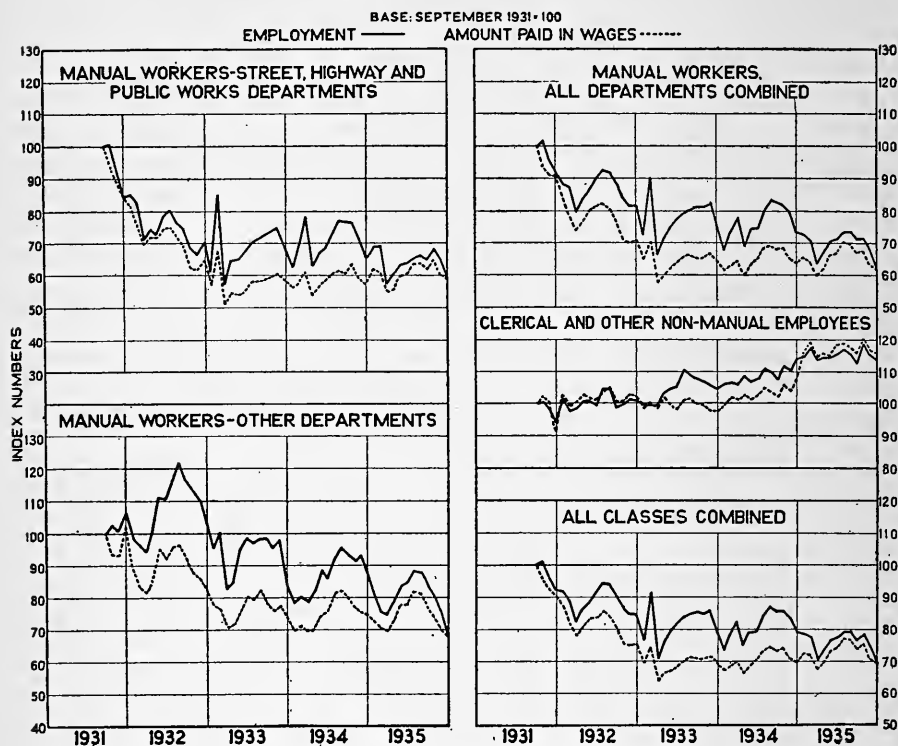
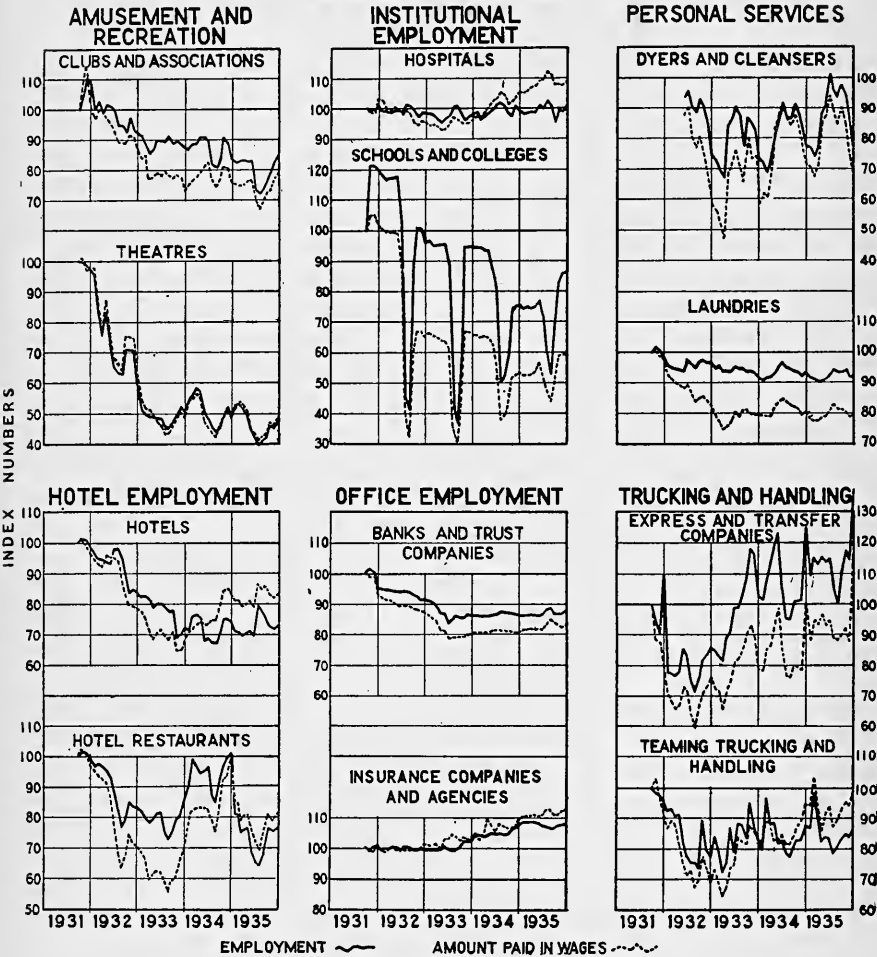


Plate 16

TRENDS OF EMPLOYMENT AND TOTAL WAGES PAID IN 12 MISCELLANEOUS CLASSES OF EMPLOYMENT IN MASSACHUSETTS, SEPTEMBER, 1931-DECEMBER, 1935

BASE: SEPTEMBER 1931 = 100



REPORT OF THE DIVISION OF STANDARDS

JOHN P. MCBRIDE, *Director of Standards*

INTRODUCTION

The principal function of this division is the exercise of supervision over commercial trade practice insofar as weights and measures may be concerned. Many other duties have been imposed by statute from time to time, somewhat broadening the scope of activities. One of the major problems during the year has been devices used for measuring fuel oil for domestic and industrial purposes. Installation of meters on tank trucks and at bulk stations have shown considerable increase and meters of the larger sizes are coming into the field. Proper precautions have been taken to insure accuracy in these types of measuring devices, requiring on all pump-operated units, a mechanical air eliminator and, on gravity units, suitable means to prevent the registration of air or vapor. Many types of meters are employed and while, of course, it is not the duty of this division to rate the different meters, cognizance must be taken of the fact that all are mechanical devices for registering the passage of liquid and impose on weights and measures officials, a duty of greater vigilance on the device than was the case with the earlier methods of measurement; namely, delivery by sealed buckets and sealed compartments. It has also been noted that improper piping from compartment tanks has been a contributing cause to inaccuracy and particular attention has been paid to this feature of the installation. The division has acquired an additional trailer test tank, equipped with motor-driven, pumping unit, to meet the increasing demand for tests of these units. Many of the cities and larger towns are appreciating the necessity of equipping their sealers with proper facilities for tests in this field and have obtained similar equipment, thus insuring to the public the utmost protection. Progress has been made in types of devices used in the field of retail gasoline dispensing and this has been due, in no small part, to the activities of sealers of weights and measures, as a result of specifications adopted at the 1934 Conference of the Massachusetts Association of Sealers of Weights and Measures.

I recommended, in my last annual report, the enactment of legislation requiring that meats and poultry be sold by net weight determined at the time of sale, except when sold in package form properly marked as to the weight thereof, intending thereby to stop the growing practice of selling these food products on a piece basis as this latter method was inequitable to all purchasers and might easily lend itself to the perpetration of fraud. This recommendation was enacted into law and will afford better protection to the purchasing public. I also recommended legislation extending the penal provisions of law for interference with inspectors in their duties as weights and measures officials so as to include these provisions to carry the penalty for interference with the inspectors in any of their official duties. This recommendation likewise was enacted into law.

His Excellency the Governor sent a message to the legislature recommending the enactment of legislation regulating the approval and licensing of slot machines and other automatic weighing and vending devices as a source of revenue, placing the approval and licensing of these devices with this Division. It was proposed that a fee of \$5 be charged for each machine operating upon the deposit therein of a coin of the value of five cents or more, and a fee of \$2 for each machine operating upon the deposit of a coin of less than five cents, and these fees were to be prorated between the commonwealth and the cities and towns in which such machines were located. Legislation on this subject has been enacted in twelve and proposed in nine other states in the Union. As a revenue measure, this legislation would produce about \$250,000 annually with good expectation of higher annual revenue. The legislation, however, failed of passage. Revenue received from all sources showed a slight increase over that received during the preceding year.

During the year, we lost by death, Inspector Maurice F. Gloster. Inspector Gloster came into this division in 1923 from the position of sealer of weights and measures of the city of Chicopee. He proved himself a most valuable member of our staff and was possessed of the most desirable qualities found in man.

LEGISLATION ENACTED IN 1935

Legislation of particular interest to weights and measures officials enacted during the annual legislative session was as follows:

Chapter 97, requiring meats and poultry to be sold by net weight determined at time of sale, except when sold in package form bearing a plain and conspicuous statement of net weight as provided in section 181, chapter 94, General Laws.

Chapter 95, requiring with each sale of fuel oil, in quantities of ten gallons or over, the delivery to the purchaser of a certificate or memorandum including the names and addresses of the seller and of the purchaser, and a statement of the quantity delivered, in terms of gallons and fractions thereof, if any. This legislation was petitioned by the Massachusetts Association of Sealers of Weights and Measures.

Chapter 42, prohibiting the sale of artificial flowers and miniature flags by hawkers and peddlers. This act was initiated by representatives of veterans' organizations and was designed to curtail the activities of certain holders of disabled veterans' licenses who offered these articles for sale in a manner which implied that the proceeds were devoted to the relief of disabled veterans of the World War instead of their own personal gain. The purpose of this law has been accomplished only to a limited extent and has been circumvented by many of the peddlers in question who now offer a small bow pin made of narrow red, white and blue ribbon instead of the miniature flag.

Chapter 60, providing a penalty for interfering with the director and inspectors of standards in the performance of their official duties.

Chapter 363, requiring the installation of pick-clocks on looms in certain textile factories, this act becoming effective December 31, 1940.

DIVISION PUBLICATIONS

Publications of this division during the year included the following:

Bulletin No. 30, containing full text of laws of special interest to weights and measures officials enacted in 1935; revised units of measurement governing the sale of wooden shingles; rules and regulations governing the use of odometers in determining rental or transportation charges for motor vehicles; and a supplementary list of weighing and measuring devices, etc., approved or disapproved by the director of standards since the publication of Bulletin No. 29.

General Laws Relating to Weights and Measures and the Licensing, Inspection and Sale of Various Articles, as amended to September 1, 1935.

Sealers' Manual, Fourth Edition, Relative to Inspection, Testing and Sealing of Weighing and Measuring Devices in Conformity with Established Tolerances and Specifications; Instruction for Efficient Performance of Other Duties devolving upon Weights and Measures Officials; with Appendices covering Rules and Regulations Issued by the Director of Standards under Statutory Authority, the Metric System, and General Tables of Weights and Measures and their equivalents.

Specifications, Tolerances and Regulations for Liquid Measuring Devices, revised to November 1, 1935.

CLINICAL THERMOMETERS

Reports of all sales and shipments of clinical thermometers bearing a MASS SEAL, required to be filed in this office by authorized manufacturers, show that during the year sales and shipments of 225,828 such thermometers were made, an increase of 15.74 per cent over the preceding year. Of this number, 109,584 were sold in Massachusetts and 116,244 in other states and the Dominion of Canada.

Five manufacturers authorized to use seal-marks upon certain of their products applied for the inclusion of other types of clinical thermometers within their authority and were authorized to affix their MASS SEAL mark upon 12 new or improved types.

One manufacturing company disposed of its business to another concern and the sealing authority of the former was cancelled.

New applications for sealing authority from two additional manufacturers were pending at the close of the fiscal year.

LABORATORY WORK

Calibration of Standards for Cities and Towns

ARTICLES	Tested	Adjusted	Sealed	Condemned
Avoirdupois weights	16	9	15	1
Troy weights	18	—	18	—
Apothecary weights	42	—	42	—
Metric weights	24	—	24	—
Linear measures	1	—	1	—
Totals	101	9	100	1

Clinical Thermometers

DESCRIPTION	Tested	Passed	Rejected	Per Cent Passed
Massachusetts seal	660	601	59	91.06
Unsealed	5,160	3,394	1,766	65.77

The greater number of these unsealed thermometers were submitted by manufacturers applying for authority to affix a manufacturer's seal upon their products or who, not having such authority, desired to fill orders originating in this Commonwealth. The results of these tests would indicate that purchasers of clinical thermometers bearing a MASS SEAL may be reasonably assured of obtaining instruments having a high degree of accuracy.

Fees received for testing and certification of clinical thermometers to be offered for sale in this Commonwealth amounted to \$325.96.

Cans, Cartons, and Other Containers, Measures and Weighing and Measuring Devices Submitted in Connection with Manufacturers' Applications for Approval or for Authority to Affix the Manufacturer's Seal Thereon.

ARTICLES	Tested	Accurate	Inaccurate
Cartons for use as measures in sale of ice cream, etc.	79	66	13
Computing scales	27	25	2
Computing scale charts	69	69	—
Counter scales	30	30	—
Spring scales	15	9	6
Person-weighing scale	1	1	—
Wholesale milk cans	13	5	8
Milk jars	17	17	—
Glass graduates	90	73	17
Liquid measures	26	19	7
Coin-operated vending and amusement machines .	12	11	1
Totals	379	325	54

Miscellaneous Tests

	Tested	Accurate	Inaccurate
Automatic test-measure for gasoline and oil meters, etc.	10	9	1
Apothecary weights	15	15	—
Metric weights	16	16	—
Troy weights	27	27	—
Incubator thermometers	2	2	—
Oil bottles	1	—	1
Standard farm produce box	1	1	—
Olive oil cans	2	1	1
Totals	74	71	3

Other laboratory work included measurement of 318,002 yards of sewing thread, and weighing, measuring or counting the contents of various packages to settle disputes or to assist packers in determining proper labelling of packages; also the

testing and verification of linear lobster measures and shell-fish rings for the Department of Conservation, and scales, etc., for other departments.

FIELD WORK OF INSPECTORS

Large Capacity Scales

During the year, 134 cities and towns were visited and 307 large-capacity scales were tested by means of the state test truck and standard weights totalling 15 tons. Twelve of these scales were located at state institutions, the others being used in connection with various commercial and industrial enterprises or for public weighing. Upon first tests, 191 of these scales were found accurate, within tolerance, while the remaining 116 required adjustment, repairs, or replacement. As usual the Public Works Department was advised as to the condition of scales in various locations which might be used in weighing road-building materials, etc. In some cities and towns, where a scale was found possessing a high degree of accuracy, such scale was designated as a "master-scale" to be used by the local sealer in establishing test loads for other scales where his limited equipment of standard test weights are insufficient for an adequate test.

Gasoline and Oil Meters and Tank Trucks

As previously reported, the equipment of this division includes a portable, 100-gallon test tank, equipped with motor-driven pumping unit, meter, and air separator, mounted upon a trailer attachable to any of the division automobiles so as to be readily available in any section of the Commonwealth. During the year, inspectors, with this equipment, have made 45 visits to various cities and towns and tested 197 bulk station and truck-tank meters of which 34 were in such condition that repairs were necessary and 95 required adjustment in order to bring their indications of quantities delivered within the established tolerances or allowable errors. The inspectors also calibrated 16 truck-tank compartments and four testing tanks used by major oil companies and local sealers.

Other activities of the inspectors in the field included:

Number of Inspections: — Stores, 1,189; pedlars, 887; transient vendors, 331; net weight markings, 171; coal weight certificates, 74; coal (quality), 39; total, 2,691.

Weighing and Measuring Devices: — Sealed, 8,167; unsealed, 2,268; total inspected, 10,435. Accurate, 2,299; inaccurate, 340; total tested, 2,639.

Reweighings

COMMODITY	Number	Correct	Under	Over
Coal (loads)	74	16	31	27
Coal (in bags)	36	5	14	17
Packages of food, etc.	8,757	3,584	2,332	2,841
Totals	8,867	3,605	2,377	2,885

Remeasurements

COMMODITY	Number	Correct	Under	Over
Alcoholic beverages	29	25	4	—
Olive oil	51	10	29	12
Range oil	9	5	4	—
Totals	89	40	37	12

State Institutions

ARTICLE	Tested	Adjusted	Sealed	Condemned
Scales	415	47	363	52
Weights	1,009	106	987	22
Gasoline pumps	12	1	10	2
Kerosene pumps	1	—	—	1
Liquid measures	9	—	9	—
Personal height-measuring device	1	—	1	—
Totals	1,447	154	1,370	77

Inspection and tests were made of 85 gasoline, fuel-oil and grease-measuring devices, installed under working conditions and submitted for approval under section 29, chapter 98, General Laws.

There were 43 applicants for certificates of fitness for appointment as measurers of leather. After examination, certificates were issued to 32 of these applicants, the other 11 failing to qualify.

Complaints Investigated

There were 101 complaints investigated. Several of these related to coal which was claimed to be of poor quality. In many of these cases it developed that the quality came within the limitations set by the Department of Health, but that the complainants had not ordered coal of such size as to give best results in the type of heating apparatus in which it was used. In two of these complaints the investigations resulted in prosecution with fines aggregating \$100. Many other complaints were adjusted satisfactorily to the complainants.

Prosecutions

There were 29 prosecutions by inspectors of this division during the year. There were 27 findings of guilty, one not guilty, and one entered a plea of nolo. After the findings of guilty, eight cases were placed on file and fines amounting to \$486 were imposed on the other defendants.

Court Cases

NATURE OF OFFENCE	Number of complaints	Convicted	Discharged	Pleaded nolo	Filed	Fines imposed	Appealed
Giving insufficient weight of cheese	1	1	-	-	-	\$25	-
Giving insufficient weight of ham	1	1	-	-	-	10	-
Giving insufficient weight of macaroni	1	1	-	-	-	25	-
Attempt to give insufficient weight of coal	1	1	-	-	-	75	-
Attempt to give insufficient weight of tomatoes	3	3	-	-	-	21	-
Attempt to give insufficient weight of turkey	2	1	-	1	-	10	-
Attempt to give insufficient measure of range oil	3	3	-	-	1	75	1
Exposing for sale coal in bags containing foreign substance	2	2	-	-	1	100	1
Possession of false scale	1	-	1	-	-	-	-
Possession of measure not conforming to standard	1	1	-	-	-	10	-
Exposing for sale bread without weight label	1	1	-	-	-	5	-
Interfering with inspector in performance of duty	1	1	-	-	-	50	-
Conducting transient business without license	3	3	-	-	-	65	-
Peddling without license:—							
Eggs	2	2	-	-	2	-	-
Meats	1	1	-	-	1	-	-
Range oil	3	3	-	-	2	10	-
Fruits and vegetables	2	2	-	-	1	5	-
Totals	29	27	1	1	8	\$486	2

OFFICE WORK

Weighing and measuring devices approved as to design and construction under section 29, chapter 98, General Laws, included 28 even-balance counter scales, 6 spring and lever market scales, 1 railway express scale, 1 union counter scale, 1 ice scale, 6 portable platform scales, 18 dormant platform scales, 7 fan-type computing scales, 26 cylindrical computing scales, 1 household oil meter, 10 filling station gasoline meter systems, 59 computing meter systems, 10 tank-truck meter systems, 6 bulk station meter systems, 6 grease-measuring devices, 1 liquid measure, and 1 fabric-measuring device. One ice scale, 3 jeweler's pocket balances for weighing old gold, etc., and 2 oil measures were disapproved under this statute.

Coin-operated devices approved under section 283, chapter 94, included 1 person weigher, 2 vending devices, 6 amusement devices, and 2 combination vending and amusement devices.

Under section 13, chapter 98, five manufacturers were authorized to affix the MASS SEAL to 10 additional types of clinical thermometers. Applications from four new manufacturers are pending.

Under section 47, chapter 98, one manufacturer was authorized to affix the

manufacturer's seal-mark upon 9 sizes of metric and 9 sizes of apothecary glass graduates of his manufacture.

Under section 18, chapter 98, two manufacturers of wholesale milk cans were authorized to affix the manufacturer's seal upon 9 sizes and types of these measures.

Under section 15, chapter 98, one manufacturer was authorized to seal a certain type of milk bottle of his manufacture.

Under section 22, chapter 98, there were 12 sizes and types of paper or fibre cartons approved for use as measures in the sale of ice cream and certain other specified commodities.

Under section 3, chapter 101, \$2,000 in cash was deposited and surety bonds amounting to \$181,000 filed with the director by applicants for transient vendors' licenses, these deposits and bonds to be subject to legal claims incurred in connection with the business conducted under such licenses.

As shown by the detailed financial statement which concludes this report, a total of \$112,036.06 was received from all sources, including fees for hawkers' and pedlers' and transient vendors' licenses, transfer fees, pedlers' license plates and badges, and fees for testing clinical thermometers.

Hearings were given to 50 firms and individuals upon complaints of violation of laws governing the labelling of bread, food in package form, alcoholic beverages, and misuse of pedlers' licenses, including such licenses issued without fee to disabled veterans of the World War.

LICENSES *Transient Vendors*

There were 366 transient vendors' licenses issued and \$9,150 received in fees therefor. Three persons were prosecuted for conducting transient business without license.

Hawkers and Pedlers

There were 4,500 hawkers' and pedlers' licenses and 847 transfers of licenses for which fees were received, comparable with 4,426 issued and 794 transferred in the preceding year. Special licenses were issued without fee to 397 disabled veterans of the World War, 82 less than were issued in 1934.

EDUCATIONAL AND CO-OPERATIVE ACTIVITIES

Aside from the distribution of the various publications of the division, co-operation with officials of this and other states and with various manufacturers and business organizations continued throughout the year.

Previous to the National Conference of Weights and Measures Officials of the United States, held at Washington, D. C., June 4 to 7, the director was appointed as a member of the Committee on Specifications and Tolerances, the duty of which was to recommend additions and amendments to the existing code so as to embrace the many new weighing and measuring devices which had been developed since the last National Conference was held in 1931. Massachusetts was again honored when, in the absence of President Lyman J. Briggs, Director of the National Bureau of Standards, the director was chosen to preside at all of the sessions of the conference, which included representatives of 23 States and the District of Columbia, and, in the election of officers, the director was chosen as first vice-president for the ensuing year.

The director and inspectors were in attendance at the annual convention of the Massachusetts Association of Sealers of Weights and Measures at Fitchburg, October 17 and 18, where there was an interesting exhibit of weighing and measuring devices, and local sealers had an opportunity to seek the advice of the state officials in relation to various phases of their work.

During the year, the director met with an association of tank manufacturers to discuss requirements for vehicle tanks used in the delivery of fuel oil and other petroleum products, and also addressed a meeting of the Framingham Chamber of Commerce. Inspector William Bradley addressed a gathering of oil dealers at Chicopee upon the application of the hawkers' and pedlers' license law in the sale of fuel and range oil.

Section 29, chapter 98, General Laws, requiring the director of standards to establish units of measurement to be observed in the sale of wooden shingles, was

purposely made sufficiently flexible to permit the director to make necessary changes to meet changing conditions without new legislation. In conference with shingle manufacturers, lumber dealers, and interested builders, it developed that, since the prevailing standard units became effective in 1932, there had been an increasing use of 16-inch and 18-inch shingles, for side-wall coverage, with greater weather exposure than ordinarily allowed, when these shingles are employed for roof coverage as originally designed.

In order to facilitate the use of wooden shingles for side walls and the estimation of cost of such shingles for that purpose, the side-wall square of 16-inch and 18-inch shingles was established, each side-wall square having a coverage of 100 square feet when laid with the specified weather exposure in each case.

After consultation with interested parties in other sections of the country, the Division of Trade Standards, U. S. Bureau of Standards, has adopted these new units and they will be included in a new edition of their publication "Wood Shingles, Commercial Standard CS 31-35."

Under the terms of chapter 16, Resolves of 1935, the director of standards and the state forester, acting jointly, were "authorized and directed to investigate the matter of standardizing calipers used in measuring wood for the purpose of recommending proper standards and specifications to be established therefor." The purpose of this resolve was to secure a uniform rule for measuring logs, and while the language of the resolve appeared to confine the investigation to standardization of calipers, the scope of the investigation was broadened to include both calipers and straight scales, as log rules are based on both of these elements. Hearings were conducted in the northern, southeastern and western regions of the commonwealth and it was found that each section was operating on a local scale based on local utilization and local custom. In one section, the length of logs were fifty, sixty or seventy inches, while in another section the utilization was of logs eight to fourteen feet in length. It is obvious, therefore, that it would be difficult to strike an average log rule which would be fair to all parties. The expression of opinion received at the public hearings indicated satisfaction with the log scales under which they were working and in view of the fact that a uniform rule would work a hardship because of the difference in the local utilization, no legislation was recommended at this time. A full and complete report of the investigation has been filed with the clerk of the house of representatives, in accordance with the terms of the resolve.

LOCAL SEALERS OF WEIGHTS AND MEASURES

The sealers of weights and measures in the towns of Dalton, Egremont, Hancock, Peru, Rockport, Sherborn and Tisbury failed to file with the director of standards the annual reports required by section 37, chapter 98, General Laws, and consequently, any work which may have been performed by them is not included in the following summary.

SUMMARY OF LOCAL SEALERS' WORK

ARTICLE <i>Scales</i>	Adjusted	Sealed	Non-sealed	Condemned
Platform (over 5,000 lbs.) . . .	402	2,469	48	106
Platform (100 to 5,000 lbs.) . . .	3,873	20,132	890	743
Counter (100 lbs. or over) . . .	206	1,546	48	47
Counter (under 100 lbs.) . . .	1,542	14,865	293	280
Beam (100 lbs. or over) . . .	109	1,471	92	48
Beam (under 100 lbs.) . . .	42	682	4	13
Spring (100 lbs. or over) . . .	202	4,861	40	307
Spring (under 100 lbs.) . . .	3,588	27,302	311	1,195
Computing (100 lbs. or over) . . .	53	304	5	14
Computing (under 100 lbs.) . . .	3,907	21,991	232	1,019
Person weigher (slot) . . .	160	4,672	26	280
Prescription . . .	174	1,976	56	49
Jewelers' . . .	17	577	3	64
Totals . . .	14,275	102,848	2,048	4,165

ARTICLE				
<i>Weights</i>	Adjusted	Sealed	Non-sealed	Condemned
Avoirdupois	5,939	118,284	563	605
Apothecary	316	21,348	34	407
Metric	151	8,736	362	81
Troy	509	7,972	71	142
Totals	6,915	156,340	1,030	1,235

Capacity Measures

Vehicle tank (compartments)	2	2,274	—	15
Liquid measures	248	32,752	150	634
Ice cream cans	—	13,713	—	141
Glass graduates	—	272	—	26
Oil bottles	—	9,905	—	97
Milk jars	—	828	—	—
Dry measures	—	850	—	26
Fuel baskets	—	1,066	—	23
Totals	250	61,660	150	962

Automatic Measuring Devices

Gasoline pumps	1,494	9,868	1,234	661
Gasoline and oil meter systems	2,826	17,806	176	1,216
Kerosene pumps	126	3,140	164	88
Lubricating oil pumps	1,537	9,063	8,411	229
Grease-measuring devices	372	1,584	116	111
Molasses pumps	2	138	47	1
Quantity stops (on measuring pumps)	3,632	47,333	17	—
Leather-measuring machine	8	250	3	44
Totals	9,997	89,182	10,168	2,350

Linear Measures

Yard sticks	—	6,491	—	154
Tapes	—	39	—	2
Taximeters	—	1,750	—	15
Cloth-measuring devices	—	838	—	16
Totals	—	9,118	—	187
Grand totals	31,437	419,148	13,396	8,899

Sealing fees collected \$56,729.46
 Adjusting charges . . . 4,560.52

Total collected . . . \$61,289.98

Reweighings and Remeasurements

COMMODITY	Number of Reweighings, etc.	Correct	Under	Over
Beans	4,922	3,801	581	540
Bread	38,019	23,323	3,753	10,943
Butter	20,239	16,908	1,542	1,789
Charcoal (in paper bags)	695	636	15	44
Coal (in paper bags)	10,001	6,593	734	2,674
Coal (in transit)	1,827	529	180	1,118
Coke (in paper bags)	880	845	21	14
Confectionery	5,273	4,493	209	571
Dry commodities	24,191	19,739	1,628	2,824
Dry goods	55	41	11	3
Flour	7,696	5,538	908	1,250
Fruits and vegetables	11,129	7,749	1,618	1,762
Grain and feed	788	655	26	107

Reweighing and Remeasurements — Continued

COMMODITY	Number of Reweighings, etc.	Correct	Under	Over
Hay	130	61	59	10
Ice	792	402	55	335
Kindling wood (in paper bags)	3,599	3,550	24	25
Lard	4,001	3,698	74	229
Liquid commodities	5,044	4,558	280	206
Meats and provisions	9,741	8,108	636	997
Potatoes	7,335	4,306	1,191	1,838
Cord wood	97	64	26	7
Kindling wood	37	36	1	—
Miscellaneous	621	466	107	48
Totals	157,112	116,099	13,679	27,334

The annual reports also show the following reweighings, remeasurements and re counts of various commodities made by local sealers for municipal departments: — Reweighed 5,155 loads of coal, 123 loads of hay and grain, 67 bales of hay, four bales of straw, 107 bags of oats, 195 loads of sand and gravel, 383 tons of broken stone, two loads of hot mix, 80 tons of old iron, 23 bags of cement, three bags of hydrated lime, two bundles of leather, 18,390 lbs. of reinforced steel, 680 lbs. of lead, 800 lbs. of nails, 800 lbs. of grass seed, 100 lbs. of fertilizer and one lot of sponges; remeasured 614¾ cords of wood, 11 loads of kindling wood, 38 tank-loads of fuel oil, 323½ cu. yds. of cinders, 5,378 cu. yds. of loam, 408¼ cu. yds. of gravel, 63,864 feet of lumber, 100 gallons of varnish, 50 gallons of paste and five gallons of paint; and recounted 1,470 cinder blocks, 3,372 bricks, 6,640 bolts and washers, and 110 miscellaneous articles. Measurements were also made of 52 trucks used in hauling gravel, loam, and garbage, to determine their carrying capacity in terms of cubic yards.

Local sealers inspected 8,157 clinical thermometers, 1,953 coal weight certificates, 1,450 ice scales, 418 junk scales, 2,544 pedlers' scales, 417 transient vendors, 5,481 pedlers' licenses, 36,340 markings of food packages, 21,825 weight statements on bread loaves, 8,952 ice cream cans, 3,287 wholesale milk cans, 13,236 milk jars, 15,802 lubricating oil bottles, 4,174 paper cartons, 6,355 markings on fuel bags, and 4,814 other miscellaneous items; and tested 1,153 berry baskets, 803 climax baskets, 3,054 paper or fibre cartons, 6,525 milk jars; 1,043 lubricating-oil bottles, 730 standard farm-produce boxes, 27 United States standard barrels, 2,553 retests of gasoline and oil-measuring devices after sealing and made 1,590 other miscellaneous tests.

PROSECUTIONS BY LOCAL SEALERS

NATURE OF OFFENCE	Number of Complaints	Convicted	Discharged	Pleaded nolo	Filed	Fines imposed	Appealed	Defaulted
Giving insufficient weight of:—								
Coal	8	4	4	—	—	\$130	—	—
Coke	2	2	—	—	—	40	—	—
Fish	2	1	1	—	—	10	—	—
Fruits and vegetables	5	5	—	—	1	50	—	—
Chicken	2	1	1	—	—	10	—	—
Turkey	2	2	—	—	—	10	—	—
Meats	10	5	1	4	6	35	—	—
Wood	3	3	—	—	1	60 ¹	—	—
Miscellaneous	1	1	—	—	—	15	—	—
Attempt to give insufficient weight of:—								
Chicken	1	1	—	—	—	25	—	—
Turkey	2	1	1	—	—	5	—	—
Meat	1	1	—	—	1	—	—	—
Attempt to give insufficient measure of:—								
Loam	1	1	—	—	—	—	—	—
Gasoline	1	1	—	—	—	15	—	—
Possession of false scale	5	5	—	—	—	35	1	—
Possession false measure	1	1	—	—	—	5	—	—
Using unsealed scale	4	4	—	—	2	20	—	—
Fraud and deceit in sale of coal	3	2	1	—	—	75	—	—
Failure to issue weight certificate in sale of coal	8	5	3	—	1	75	—	—
Failure to issue certificate in sale of firewood	2	2	—	—	1	25	—	—
Failure to provide scale on ice wagon	2	2	—	—	1	5	1	—
Failure to display price list on ice wagon	2	2	—	—	1	5	1	—
Refusal to sell ice from vehicle	1	1	—	—	1	—	—	—
Sale of bread not bearing weight label	4	4	—	—	—	35	—	—
Sale of fruit otherwise than by weight or count	1	1	—	—	—	10	—	—
Sale of kindling wood otherwise than by measure	1	1	—	—	1	—	—	—
Conducting transient business without license	4	4	—	—	2 ³	30	—	—
Peddling without license:—								
Bakery products	4	3	1	—	2	10	—	—
Coal	4	4	—	—	1	60	—	—
Fish	2	2	—	—	2	—	—	—
Flowers	1 ⁴	—	—	—	—	—	—	—
Fruits and vegetables	15	12	1	—	—	66	—	2
Hams	2	2	—	—	1	10	—	—
Household supplies	2	2	—	—	—	40	—	—
Ice cream	1	1	—	—	1	—	—	—
Loam	1	1	—	—	—	—	—	—
Oil (fuel and range)	8	6	2	—	3	75	—	—
Playing cards	1	1	—	—	1	—	—	—
Popcorn	1	1	—	—	1	—	—	—
Razor blades	2	2	—	—	1	10	—	—
Razor hones	1	1	—	—	—	10	—	—
Shopping bags	1	1	—	—	1	—	—	—
Needle-threading device	1	1	—	—	—	—	—	—
Toilet articles	3	3	—	—	2	1	—	—
Wood	2	2	—	—	—	10	—	—
Miscellaneous	25	25	—	—	4	179	—	—
Failure to produce license upon demand	1	1	—	—	—	5	—	—
Peddling under another's license	2	2	—	—	—	85	—	—
Employing minor to peddle without license	3	3	—	—	—	30	—	—
Furnishing oil to minor to peddle without license	1	1	—	—	—	5	—	—
Furnishing ice cream to minor to peddle without license	1	1	—	—	—	20	—	—
Totals	164	141	16	4	40	\$1,341	3	2

¹ One defendant was fined \$10 and required to make restitution to the amount of one-half cord of wood.² Filed upon payment of court costs.³ Filed upon payment of court costs and obtaining license.⁴ Continued.

FINANCIAL STATEMENT OF THE DIVISION OF STANDARDS

Receipts

1,044 State (hawkers' and pedlers') license fees	\$52,200.00
1,995 County (hawkers' and pedlers') license fees	17,610.00
654 City (hawkers' and pedlers') license fees	16,984.00
807 Town (hawkers' and pedlers') license fees	9,259.00
366 Transient vendors' license fees	9,150.00
847 Transfer fees	847.00
Total receipts from license fees	\$106,050.00

Fees received for licenses not issued	\$338.00
Fees received for testing clinical thermometers	325.96
Received for pedlers' plates and badges	4,987.00
Total receipts	<u>\$111,700.96</u>
Court fines for violations of hawkers' and pedlers' laws	333.50
Accumulated deposits covering uncashed checks	1.10
Sale of envelopes . . . . .	.50
Total	<u>\$112,036.06</u>

Payments

To State Treasurer:

1,044 State license fees	\$52,200.00
1,995 County license fees	1,995.00
654 City license fees	654.00
807 Town license fees	807.00
366 Transient vendors' license fees	9,150.00
847 Transfer fees	847.00
Fees received for licenses not issued	338.00
Fees received for testing clinical thermometers	325.96
Pedlers' plate and badge money	4,987.00
Accumulated deposits covering uncashed checks	1.10
Sale of envelopes . . . . .	.50

Total payments to State Treasurer	\$71,305.56
To county treasurers	\$15,615.00
To city treasurers	16,330.00
To town treasurers	8,452.00

Total paid to county, city and town treasurers	40,397.00
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Total payments	\$111,702.56
Total paid direct to state treasurer for court fines	333.50

<u>\$112,036.06</u>

Summary

Appropriation, personal services	\$31,530.00
Expended	31,418.97
Unexpended balance	\$111.03
Appropriation, general expenses	13,613.03
Expended	11,287.52

Unexpended balance	<u>\$2,436.54</u>
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Total income to the Commonwealth from licenses, etc.	\$71,305.56
Total expenditures	42,706.49

Excess of income over expenditures	<u>\$28,599.07</u>
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REPORT OF THE DIVISION ON THE NECESSARIES OF LIFE

RALPH W. ROBERT, *Director*

Authorization

Sections of Chapter 410 of the Acts of 1930, as amended by Chapter 362 of the Acts of 1933, are published herewith:

SECTION 9E. — The division shall study and investigate the circumstances affecting the prices of fuel, gasoline and refined petroleum products and other commodities which are necessities of life. It may inquire into all matters relating to the production, transportation, distribution and sale of the said commodities, and into all facts and circumstances relating to the cost of production, wholesale and retail prices and the method pursued in the conduct of the business of any persons, firms or corporations engaged in the production, transportation, or sale of the said commodities, or of any business which relates to or affects the same. It shall also study and investigate the circumstances affecting the charges for rent of property used for living quarters, and in such investigation may inquire into all matters relating to charges for rent.

SECTION 9F. — The division shall have authority to give hearings, to administer oaths, to require the attendance and testimony of witnesses and the production of books and documents and other papers, and to employ counsel. Witness summonses may be issued by the director or by any assistant by him designated and shall be served in the same manner as summonses for witnesses in criminal cases issued on behalf of the commonwealth, and all provisions of law relative to summons issued in such cases shall apply to summonses issued hereunder, so far as they are applicable. Any justice of the supreme judicial court or of the superior court may, upon application of the director, compel the attendance of witnesses and the giving of testimony before the division in the same manner and to the same extent as before said courts.

SECTION 9G. — The division shall investigate all complaints made to it, and may publish its findings. It shall keep in touch with the work of federal and municipal and other agencies dealing with the necessities of life, and give them such assistance as it deems advisable; and may invoke the aid of said agencies and of civic and other organizations.

SECTION 9H. — Whenever the governor shall determine that emergency exists in respect to food or fuel, or both, he may, with the approval of the council, by a writing signed by him, designate the director of the division on the necessities of life to act as an emergency food or fuel administrator, or both, and thereupon the director shall have, with respect to food or fuel, or both, as the case may be, all the powers and authority granted by the Commonwealth Defense Act of nineteen hundred and seventeen, being chapter three hundred and forty-two of the General Acts of nineteen hundred and seventeen, to persons designated or appointed by the governor under section twelve of said chapter three hundred and forty-two; and the governor may revoke such written authority at any time. During such an emergency, the governor, with the approval of the council, may make and promulgate rules or regulations, effective forthwith, for the carrying out of the purposes of this section and for the performance by the commonwealth and the cities and towns thereof of any function affecting food and fuel authorized under Article XLVII of the amendments to the constitution. Violation of any such rule or regulation shall be punished by a fine of not more than five hundred dollars or by imprisonment for not more than six months, or by both. The provisions of said chapter three hundred and forty-two are hereby made operative to such extent as the provisions of this section may from time to time require.

SUMMARY OF ACTIVITIES

Introduction

During the year 1935, many changes took place in our economic structure. Early in the year, the Supreme Court of the United States determined that the

National Recovery Administration was unconstitutional and as a result of this decision, many phases of our business and economic life were changed overnight. It has been the policy of the division to not only procure the facts concerning the production, transportation, distribution and sale of commodities, but also to protest national legislation that was determined to be inequitable, in so far as it affected Massachusetts and her people.

Because of the many national laws passed governing our economic life, it has been necessary to utilize the many agencies of the federal government. From these sources, we are bringing to our Massachusetts consumer through the medium of this, our annual report, many pertinent informative articles that we feel will be of value to the consumer.

Although Massachusetts people have the reputation of being discriminative purchasers, it is only human that the price element of commodities would be the dominating factor. A great deal of waste results from purchases on a price basis. The division emphasizes the consumer's right to full and correct information on prices, quality of commodities, and on costs and efficiency of distribution. It aims to aid consumers in making wise and economical purchases by reporting changes in prices and costs of food and farm commodities. It relates these changes to developments in the agricultural and general programs of national recovery. It reports on co-operative efforts which are being made by individuals and groups of consumers to obtain the greatest possible value for their expenditures. The producer of raw materials — the farmer — is dependent upon the consuming power of the people. Likewise, the consumer depends upon the sustained producing power of agriculture. The common interest of consumers and agriculture far outweigh diversity of interests.

We pass on to the consumer, in addition to information obtained through studies made by this division, information procured and published by the Consumers Council of the A.A.A., the Bureau of Agricultural Economics, the Bureau of Home Economics, and the Bureau of Labor Statistics, to whom we express our appreciation in this respect.

In an endeavor to encourage the use of the terms "quantity, quality and commodity" synonymously, we present the following article entitled "What is a Price?"

"A price is not just a price, but a price of something. If a price is to be known, that evasive something must be reduced to exact and concrete terms. It can be neatly set down in a definition that 'price is the sum that must be paid for a definite quantity of a specified commodity possessed of a given quality.' But such terms as 'quantity,' 'quality,' and 'commodity' invite further explanation, and such adjectives as 'given,' 'specified,' and 'definite' lead out into the wilderness of uncertainty.

"Our markets are full of a number of things. The wares of trade are more plentiful than the nouns of merchandising in a dictionary. Even the addition of adjectives is not sufficient to give to useful goods clean-cut identities. Soap or gasoline, a chair or a rug, a book or a movie ticket tells little of the article it professes to describe. An automobile, even though it continues to be a Ford or a Chevrolet or a Plymouth, is a different thing from year to year. It is impossible to speak of the price of pork, as of a suit of clothes, a dinner-down-town, or a 'permanent' hair wave. For so simple a purpose as fixing freight rates the Interstate Commerce Commission finds it necessary to throw into classes some thousands of items. The enumeration of the wares of trade in a Tariff Act is intelligible only to a whole galaxy of experts.

"The identity of a commodity is not proof against the impact of the market. A bar of chocolate may continue to be priced at a nickel, but its weight may vary with the cost of the raw materials. A cigar may continue to sell at an established price of ten cents, even though its tobacco may undergo metamorphosis. Women's dresses sell at stereotyped prices — but the materials and workmanship are undergoing constant change. A price may abide while endless changes are rung on the thing that is priced.

"A price — quoted for a quantitative unit — postulates a distinct quality. One copy of 'Anthony Adverse,' one box of Uneda Biscuits, one bottle of Listerine, one package of Chesterfield cigarettes, is substantially like another. In such cases the ware of trade can be clearly identified, and prices can be compared. But even

where goods can be standardized a multiplication of items makes a price structure confusing. Where a lack of uniformity in raw material, an appeal to taste, or the rule of fashion, makes standardization impossible, the prices of things are wrapped in mystery. Moreover advertising tends to draw forth a demand in response to the display of a symbol; and it is only to the extent that trade names rest upon the physical properties of the ware—rather than upon an æsthetic appeal to the senses—that the consumer knows what is being priced.

"One pound of granulated sugar is like another. The noun 'coffee' on package or can tells little of its promised contribution of cheer or disappointment to the morning breakfast. And syrups and candies, perfumes and toothpastes, bear eloquent testimony to the colorful variety that can be crowded within a single word. An attempt to understand a price must be prefaced by the question, what is gasoline, milk, an automobile tire, or mayonnaise dressing? It must come to grips with the miscellany of properties that lie back of the words quality, grade and brand.

"But 'the cash-nexus' is not the whole of price. The labor incident to the sale may be variously divided between buyer and seller. At certain stores one encounters an elaborate ceremonial in consummating a purchase. The price is paid, a sales slip and the money are dispatched to some remote spot, and in the fullness of time the purchase and the change are delivered. Three transactions do duty for a single one, while the impatient customer adds an increment of time to the sum he has paid. A comparison of values between stores imposes its own measure of costs; and, if the buyer's time is worth anything, adds a sizable increase to the quoted price. In a process of shopping around—a luxury which busy people can ill afford—a part of the work of the merchant is taken over by the buyer. And the patient customer must—in such unwritten accounts as he keeps—pay himself for his own bother.

"In like manner, 'the terms of sale' are aspects of the bargain. A large number of people want a thing when they want it. Accordingly an article in hand is worth more than one ordered for future delivery. A price of a good cash-and-carry is not the same thing as charge-and-deliver. It gives to the purchaser the opportunity to do his own toting and furnish his own credit. A privilege of returning bottles, a discount for quantity, a premium for continuous purchase—a veritable miscellany of tangibles and intangibles—help to make for cheapness or dearness. In fact—whatever its identity and quality—a group of services—necessary or unnecessary—has been built up about every ware of trade. And the price is the price, not of the article, but of the combination.

"But complexity does not stop here. The consumer may have to purchase a number of commodities which together are for him a single service. His interest, for example, is not in an automobile, tires, and gasoline, but in a car-on-the-go down the concrete highway. His real concern is with the total cost per mile of operating his car over a period of years. The cost of tires, the outlay for repairs, the economy in the use of gasoline, the rate of obsolescence of style lines, are factors in the price of his car. In the case of all goods which are durable, or must be used with other goods, exactness is not in strict accord with appearance, and calculation is necessary to come at the true inwardness of price.

"But the reverse is also true. A price of a composite service may confuse the separate prices out of which it is compounded. An endowment policy is at once an investment, an expense for administration, and a contribution to a pool out of which death benefits are paid. The price of a package of cigarettes is an aggregate of a manufacturing cost, a payment for advertising, and a tax. It is impossible to buy gasoline alone; with every purchase one must lay down an additional sum which is really a payment for the use of the highway. A loan to a small debtor is a medley of many items; in it the payment for the use of money is smothered beneath a multitude of charges for personal service. In all such cases the reality lies—not in the quoted price—but in the items which make it up.

"In some instances price involves indirection. A person makes a direct purchase of a radio set; but the programs are paid for by advertisers who hope to recoup through the increased sale of their products. The cost of the schools are met out of public revenue and elementary education is a priceless commodity. In business, where 'joint' services or articles are turned out, the products of high value help

carry those of low value. In the crushing of cotton-seed the prices of 'oil' and 'meal' help to defray the costs of the 'hulls' and the 'linters.' On the railroad bulky products of low value — sand, gravel, bricks, coal — are accorded low rates per ton mile because the traffic will not bear more. The prices of some articles are too low to allow a wage to be paid which will support a minimum standard of life. In such instances the price is only a part of what the consumer must pay; he must in addition contribute to the relief of poverty and destitution.

"It is, perhaps, impossible for quoted prices to reveal real values with exactness. The price may be 'the heart of the bargain,' but it is a single one among the terms of sale. A change in quality, date of sale, credit, discount, delivery, or whatnot affects the price. And as an expression in pecuniary language of an intricate industrial system at work, the prices of things can never be reduced to utmost simplicity.

"Yet the confusion in pecuniary speech calls for action. The number of 'good ounces' to the pound used to vary a bit; now honest weight is everywhere taken for granted. The commodities with evasive identities might be made a little more recognizable, and quality might patch up some sort of a truce with a standard. If a good is sold on instalment, the price of the good and the credit charge might be set down as separate items. And it might be recognized that the price-of-a-car-on-the-go is a different thing from the price tag which initially it bears.

"The language of price can never be reduced to a pecuniary Esperanto. A dynamic industrial culture will see to that. But it might cease to be intelligible only to the initiated, and be converted into a speech which the ordinary man and woman can learn to understand."

**"STANDARDS AS A METHOD OF CO-OPERATION BETWEEN PRODUCER AND CONSUMER
TO INSURE EFFICIENCY AND STIMULATE THE FLOW OF GOODS
FROM PRODUCER TO BUYER.**

"When the movement for grading and labeling and quality protective legislation first loomed on the horizon, it was, like many another new idea viewed with general apprehension. Editor of a journal of general circulation at that time, we remember that a flood of propaganda from certain interests immediately poured over our desk. 'If such a practice is accepted,' the pleas to publishers read, 'you will lose your most valuable contracts, and advertising will become an obsolete method of merchandising.'

"Straightway editorials appeared over the country assailing the movement for being everything from a Communist conspiracy to a blow aimed obliquely at freedom of the press. Advertising lineage is vital to the survival of a newspaper and editors had been convinced their very existence was threatened. Time has passed and the smell of the red herring asserts its identity.

"The journalistic profession and the general public can be stampeded but not permanently hoaxed. Their more mature and better informed mulling of the matter has changed their attitude. It was enormously encouraging to have read in a comparatively recent issue of 'Printer's Ink' — subtitled 'A Journal for Advertisers' — a frank and logical examination of the movement toward establishing and publicising of standards for consumer guidance.

"The article in 'Printer's Ink,' written by Joseph Wayer, discusses the need for the formulation of standards which will be more pertinent to the actual serviceability of the articles on the market — a service which, as he suggests, will probably be applied best, because most inclusively, by some institution as the Bureau of Standards — and the necessity for the Bureau in turn being backed by administrative officers operating after the manner of the Federal Trade Commission to protect the manufacturer of high-grade goods from the unfair competition of what aureate fringe of producers who would not scruple to label a Grade C product as Grade A if there were not some agency to prevent.

"Concluding, he reviews some of the objections which opponents — from that aureate fringe referred to above — have insinuated into the discussion of the drive for standards, and his logic, as he considers them one by one, dispels the mist which has obscured the issue and leaves it clearly defined: We chose between a step forward toward higher consumption levels, or back into the era of uncertainty, waste of time and money in haggling, and mutual distrust.

"And now that more light has somewhat dispelled the mists of uncertainty and the grading apparition is seen to be a simple, concrete method in merchandising —

no more revolutionary in this day than the department store or mail-order idea in another — it is a good time to begin over again, freed of the misgiving that we are facing a banshee, and consider grading and its practical implications with a view to realistic evaluation.

"We can think of no better approach than a re-reading of the article written by Robert S. Lynd for 'Advertising and Selling' for January 4, 1934, in the less apprehensive mood of late 1935. Excerpts from the article follow:

"There is a great deal of excited talk at the moment about consumer standards. The effort is even being made in some quarters to brand those favoring this development as opposed to the welfare of American business.

"The writer happens to be one of those who favor the extension of consumer grades and labeling to commodities sold over the counter at retail. He believes that honest manufacturers and retailers seeking to give the public the best possible value for their money have nothing to fear from the consumer standards movement; that they would continue in business under such a regime; that the volume of consumer purchasing would not be diminished; and that the only important change that the extension of consumer standards would entail would be the shifting of the basis of competition from the accidents of priority in a given field and from current vague assertions as to the merits of competing commodities to competition in terms of efficiency of production and service to the consumer.

"The fundamental issues can probably be clarified by advancing at the outset certain broad considerations that can be agreed to in principle in advance by both parties to the current dispute:

1. The first of these is the fundamental economic soundness and desirability of buying by specifications and grades determined on the basis of technical testing of the use-conditions desired of commodities. This is standard practice today in the purchasing of Government and industry. The National Industrial Conference Board in its excellent 1929 report on "Industrial Standardization," cites an estimated annual saving by the Federal Government of \$100,000,000 through purchasing by specifications, a saving by the Bell Telephone System of \$50,000 a year on the purchase of \$150,000 worth of lead pencils, and other similar savings all along the industrial front.

2. The extension of information standards to consumer commodities is in no sense opposed to the welfare of our rather sick American economy. Competition today is in terms of quantity as well as price. Price competition at any given moment (barring fluctuations in the dollar over time) is fairly open, since everyone knows the difference between 39 cents and 49 cents. Quality competition, however, is technically complex and disguised, and without standards all parties in the economic game are trying to play with "duces wild."

3. The adoption of consumer standards would reduce certain current costs of merchandising such as the "returned goods evil," and would help to stabilize business through the channeling of buying power through those plants and stores offering consistent high values. Hoover, in his report as Secretary of Commerce in 1922, said, "The lack of such established grades and standards of quality adds very largely to the cost of distribution because of the necessity of buying and selling upon sample or otherwise, and because of the risk of fraud and misrepresentation, and consequently the larger margins in trading." P. A. O'Connell, of Boston, a past president of the N.B.D.G.A., speaking in the Bulletin of the rise in the cost of returns from dissatisfied customers to a present annual total of something over \$100,000,000, says, "To an extent, the correction lies in teaching the consumer to think before she buys, but in large measure the amount of returns rests on the service and satisfaction of merchandise sold. Quality merchandise breeds few returns and few regrets for the customer, retailer, or manufacturer."

4. The development of standards, grades and precise labeling will in no sense mean either the stereotyping of American life by the elimination of variety, or bureaucratic paternalism telling people what they must buy. Variety and style will remain wherever economy or matters of taste give a real basis for variety. The person who wants a cheap towel can still buy a Grade C or D towel with a plainly specified amount of weighting. In some cases, as in canned fruits, the grading nomenclature may even stress the B or C grades of canned cling-stone peaches or other articles as *recommended* for ordinary household use by those who do not care to pay for "extra fancy" appearance.

'5. The extension of consumer standards will not involve a boycott on advertised brands. The advertised brand that is good today will still be good, only its label will go farther and tell what it is good for.

'6. The person who uses a commodity should be the judge of what he wants to buy, just as in the case of governmental and industrial purchasing. This means that a market exists to help people with use-needs to match those needs as quickly and precisely as possible with the particular commodities best able to meet them. It also means that since people are of varied educations and intelligence and not the coldly rational calculators which the classical economics assumed them to be, everything possible should be done to make buying fool-proof. This need not be argued to American business which has long recognized the importance of the "satisfied customer."

'Now if these generalizations can be agreed upon, what are the real impediments between the consumer and business as regards quality standards? This looks like one of those common situations in which all parties can agree in theory as to the desirability of moving, and yet the situation remains largely deadlocked for lack of ways and means.

'From the consumer's side, the situation is stalled by the fact that the consumer is unorganized and scarcely aware of his need for help in buying. He is like the man who is so used to his hair-shirt that he doesn't know that one can live otherwise.

'The growth of industrial output and fabrication has been accompanied by a corresponding decline in the consumer's ability to choose effectively among the choices which confront him.

'As against the relatively narrow range of choices of even two generations ago, he faces a range of genuine choices totaling 50,000 to 60,000 in a modern mail-order catalog or over 350,000 items in a great department store like Macy's.

'A survey made in Milwaukee in 1930 showed the following number of brands of various products in use among 5,000 families:

Toothbrush	256	Cleansing Powders	77
Fountain Pen	164	Toothpaste	76
Electric Washing Machine	110	Shaving Cream	73
Package Coffee	101	Mouth Wash	68
Package Butter	93	Ginger Ale	65
Breakfast Food	87	Toilet Soap	65

'The things he buys tend to be more highly fabricated and he can tell the relative merits of different vacuum cleaners and washing machines less readily than his grandfather could appraise a broom and washboard. Synthetic materials like rayon, and processes like the artificial weighting of silk are less readily appraised by him than the silks of an earlier day. Science has discovered vitamins, intestinal flora, and scores of other complex things that are hard for a layman to understand, but which are freely used in merchandising.

'It seems unlikely, therefore, that the buck can fairly be passed to the consumer with the injunction that he first educate himself to demand standards and then industry will give them to him. If our national economy is to be efficiently directed at both ends — in its making and in its spending — the consumer will have to be helped in some wholesale fashion comparable to the \$50,000,000 of annual help which the budget of the Department of Commerce and its Bureau of Standards gives to industry's earning of our annual income.

'Turning now to the businessman's side: Business is moving in the direction of standardization. Something over \$8,000,000 is spent annually in good times in the United States in standardization work. But the overwhelming bulk of this is going into the standardization of producers' goods and only an infinitesimal percentage results in consumer grades easily usable by the consumer and based on consumer use-needs. While the consumer profits by general industrial standardization, the development of adequate consumer standards remains so slight that, to quote the Industrial Conference Board's report again, "it would seem that the work has hardly begun." It is not fair, however, to pass the buck entirely to industry and merchandising and to grow irate that they do not move faster toward the development of needed consumer standards. Business is caught in the ruts of the same earlier set of traditions that clog the consumer, wherein there was no

expectation that it should shoulder the burden of developing standards. Under these traditions, certain powerful concerns have built up equities in brand names and consumer followings that naturally make them loathe to see a further extension of grading and labeling that would jeopardize their headstart on the field.

‘Actually, the modern business man is in a tight spot; he faces an exigent competitive situation, perhaps the most difficult that any generation of businessmen ever had to face. If he is to keep “out of the red,” he dares not sacrifice any competitive advantage in order to launch out into uncharted innovations. Some of us cannot help wondering what would happen if a dominant unit like Macy’s or Montgomery Ward were really to “go consumer” and inaugurate a policy of letting the consumer in on everything the store’s technical staff knows. We may suspect that the consumer response would be such as to make the dismay of New York retailers over Macy’s “6 per cent” policy look pale, and we have a bit of positive evidence in the form of a statement by an official of Sears, Roebuck that *every time a standard is used in their catalog, sales have jumped*.

‘In this impasse, with the consumer inarticulate and likely to develop neither financial resources nor concerted pressure for standardization, and with business hobbled by tradition and its immediate urgencies, the Government seems the logical agency to which to turn. It can help industry and retailing to make changes which perhaps no individual firm and few trade associations can make unaided. And in turn it can focus public attention upon the need for education for and co-operation with these innovations. The government’s own stake in such progressive steps is large; for on the one hand it must somehow stabilize our business world, and on the other it must maximize private incomes and real buying power by reducing all possible wastes and mistaken buying over the lean years that lie ahead if we are to maintain even an approximation of an American standard of living.

‘It is submitted that only through such direct action by the Government can the needed impetus to the consumer standards movement be given that will enable both consumers and business to overcome the serious waste that exists at present in the spending of our none too abundant national income. Only when our spending becomes as efficient as our productive resources can American business hope to become stabilized.’ ”

PROCESSING TAXES

Two years ago, in May, 1933, when Congress passed the Agricultural Adjustment Act, it said to the farmers:

Here’s a chance to work collectively to increase *your* share of the money consumers spend for the goods produced in this country. We know it is hard for the farmers, scattered as they are, to see all the advantages in this plan and so we are offering you a special inducement. If you join you will receive a bonus over and above the increased price which should come from collectively controlling your production. If you do not join, you will get the benefit of the higher prices, but you will not receive this extra payment. Take your choice.

Millions of farmers — in the two years since this Act was passed — *have* joined up and have written altogether 3,700,000 contracts with the Government engaging themselves to control their crops so as to bring to market only as much as consumers could buy at an improved price. To each of these farmers has gone — or will go — the promised extra payment. Up to April, 1935, they had received \$678,000,000 in rental and benefit payments.

Money like this going into farmers’ pockets obviously has to come from the pockets of some one else. To raise it, Congress provided that taxes should be collected. These were called processing taxes, because the first processor of the particular crop involved is the person from whom the Government collects them. The rate of the taxes was fixed as the difference between the average price farmers received in the years 1910–1914 and the average farm price estimated for the crop year in which the tax is levied. Prices in 1910–1914 were taken because it was in that period that farm prices had what Congress considered was a fair exchange value in relation to prices of things farmers had to buy.

First of the processing taxes imposed was 30 cents a bushel on wheat, effective July 9, 1933. Next came the cotton processing tax of 4.2 cents a pound, on August

1, 1933. Tobacco taxes which started on October 1, 1933, ranged downward from 6.1 cents a pound. Corn and hog taxes followed next on November 1, 1933; the corn tax was 5 cents a bushel, the hog tax, starting at 50 cents per 100 pounds live weight on November 1, 1933, was increased by successive stages to \$2.25 by March 1, 1934. A tax of half a cent a pound on raw sugar started on June 8, 1934, and on the same date a reduction of half a cent was made in the duty on imports of sugar. On October 1, 1934, a tax of one cent a pound, farmers' stock weight, went on peanuts. Finally on April 1, 1935, a tax of one cent a pound on rough rice was made effective. These eight taxes are now in effect.

Compensatory taxes are levied on paper and jute manufactured into certain products that compete with certain cotton products, and on imports of products that would have to be subject to processing taxes if they had been manufactured in the United States. Exemptions from processing taxes are made to farmers on products raised and processed for their home use. Taxes paid on products that are exported or delivered for relief purposes are refunded.

Twenty months' collection from the date of the first tax until April, 1935, brought into the Government's treasury \$777,500,000. Rental and benefit payments up to the same date accounted for \$678,000,000. The sum of \$64,000,000 has been expended in removing from market channels and conserving for relief supplies of certain farm products which were keeping down farm prices. Another \$34,000,000 has gone for administrative expenses.

Who really bears the burden of processing taxes? Although the processor actually hands over the tax money to the Bureau of Internal Revenue, he naturally tries to get it back from some one else. Processors have three ways of raising funds for paying the tax. One is by charging higher prices to consumers. The second is by paying lower prices to farmers. Third — the hardest of all — is by taking it out of his own pocket or by increasing the efficiency of distribution. When the first method is chosen, consumers feel the tax in a higher retail price for the commodity bearing the tax. If the processor chooses the second way, the farmer feels it in getting a lower price for the raw material he sells to the processor than he might have received had there been no tax in effect.

Ultimately, of course, the consumer pays the tax in the sense that all costs that go into making and marketing a product are included in the price he pays. Because the eight commodities taxed are bought by most consumers who have any money at all to spend, most consumers are, in this sense, share-payers of the taxes.

If all the processing taxes so far collected from processors had been passed on to consumers and if every consumer in the country, young or old, had contributed equally, each consumer's contribution would have amounted to just one cent a day. But, of course, how much each consumer actually pays depends on how much of the taxed articles he buys. This in turn depends partly on how much income he has to spend on these goods. As incomes grow bigger, the burden of the tax grows less in proportion to the income.

Not always, however, has the tax *increased* the price consumers pay for these goods, and to the extent that it has not, consumers cannot be said to be bearing a greater burden. Although the tax on hogs went into effect on November 1, 1933, retail prices of pork were not increased until February 1, 1934. By that time the smaller supply of hogs coming to market began to raise farmers' prices, and increased consumers' purchasing power showed in higher retail prices.

Sugar's tax of a half cent on each pound of raw sugar was imposed on the same date that the tariff on sugar was reduced a half cent. Since the tax addition balanced the tariff reduction consumers have not felt the tax in increased prices. Consumers were paying at the end of April an average of 5.4 cents a pound — the price they paid in February, 1934, when the tariff plan was announced.

No rice tax has yet been collected, although the statute imposing the tax was effective April 1, 1935. If the millers begin paying, the consumers will probably not notice an increase in the price of rice due to the tax unless exports are larger, in relation to this year's crop, than anticipated.

Field corn is taxed 5 cents a bushel but the corn products which consumers buy represent so little corn, it is extremely difficult to estimate what addition, if any, the tax has made in the prices of those products.

Peanut prices to consumers may have been increased by the tax on peanuts but this is not certain. Retail prices are not reported for any peanut product except peanut butter. On September 25, 1934, just before the tax went into effect, the average price of a pound of peanut butter was 17 cents. On April 23 it was 21.4 cents but this increase may be due to other causes. In any case, the maximum amount which the tax could add to the price of peanut butter would be 1.73 cents; to salted peanuts, 1.48 cents a pound; to roasted peanuts, 1.16 cents a pound.

Wheat and cotton processing taxes act differently from most of the other taxes. Because the demand for these products is relatively inelastic, it is easier to add the amount of the taxes to consumers' total expenditures for wheat and cotton products. In the case of a pound loaf of bread, the wheat tax represents approximately half a cent in the retail price; in flour, it represents about three-quarters of a cent per pound. In the case of cotton, the amount of the tax in the retail price depends on how much raw cotton was used in the manufacture of the article. Consumers can make their own estimate by weighing the article. The tax amounts roughly to 5 cents on each pound which the finished article weighs. More accurately computed, it comes to 8.3 cents on an average pair of overalls; 7.6 cents on a sheet (81 by 99 inches); 3.5 cents on an average workshirt.

Processing taxes and benefit payments to farmers, together, are the lubricant for the machinery of agriculture's control program. They have encouraged, if not actually made possible, the co-operation of millions of farmers in a program of self-help. They have helped to lift farmers' income from \$4,328,000,000 in 1932 to \$6,090,000,000 in 1934. They have helped to increase the farmers' share in each consumer-dollar spent for pork products from 45 cents in March, 1933, to 64 cents in March, 1935; for flour, from 27 cents to 40 cents; for bread, from 9 cents to 17 cents. They have helped to raise the purchasing power of farm prices from 55 to 87 in the same two-year period.

Nor is that all. By rebuilding farmers' income they have contributed to making farmers better consumers of city workers' products. At the pit of the depression, the number of workers idle as a result of inability of farmers to buy city-made goods is estimated at around 4,000,000. That farmers are spending more money is reflected in the fact that the dollar value of retail sales of general merchandise in rural areas, since the beginning of the agricultural program, has climbed up and up. In the first quarter of 1933 these sales were 53½ per cent of their 1929-1931 level. In the last quarter they had recovered to 92 per cent of that level.

COMMON GROUND

Henry A. Wallace

"The farmer wants high prices. But in self-protection he has to keep them from being too high, or by stimulating overproduction and decreasing consumption he will wreck his market. The consumer wants low prices. But in self-protection he should guard against prices going so low that the farmer will no longer be able to produce food for him. Each has to protect the other in order to protect himself.

"A significant result of nearly two years' experience with the Agricultural Adjustment Act is the degree of unity of interest between farmers and consumer that has developed out of its operations.

"Sound public policies capable of bringing great good to large numbers of city and country people can and should grow out of frank recognition of this close interdependence. The farmer gives the consumer life by supplying him with food. The consumer gives the farmer life by buying food from him. Each has to protect the other in order to protect himself.

"Sometimes, it is true, consumers and farmers lose sight of their mutual interests. When this happens, consumers imagine themselves deriving benefits from prices which mean misery on the farm, or farmers fancy they gain when city customers have to pay extreme prices in times of scarcity. These false appearances mask the greatest disadvantages from which farmers and consumers suffer.

"Wheat at \$2.20 and wartime inflation of land values didn't help the farmer. Thirty-eight-cent wheat and hogs at 2½ cents a pound did not help the consumer. The immense surpluses of foods that wrecked farm prices in 1932 didn't do the people in the bread-lines any good. Thirteen million bales of carry-over cotton didn't buy clothes for the wives and children of farmers who had to sell their

cotton at $5\frac{1}{2}$ cents a pound. Warehouses bulging with food so cheap that it meant a collapse of buying power for farmers did not save the ten million city workers that factories plowed out of their jobs and on to the streets.

"One-third of the consumer's dollar is spent for food. But the farmer's share is only about one-third to one-half of this food expenditure of housewives. In other words, the farmer customarily gets only about 13 per cent of the consumer's total cost of living expenditures. The rest of the food costs, or 20 per cent of total living costs, goes to processors, handlers, and distributors, of one kind and another. The joint interest of the farmer and consumer is to see that the share of the cost which they pay to the processors and distributors is reasonable.

"This country does not want any repetition of the emergency of 1932 and 1933, when farm prices broke under the weight of enormous surpluses. Primarily in the interests of producers, but secondarily for the protection of the consumers, this kind of disaster is one to be avoided.

"But there is another kind of disaster against which society also should erect safeguards. That is the possibility of a food shortage. Repetition of the dust storms this year has called attention to the fact that part of the wheat area is still dry. There should be ample supplies of bread grains.

"The inclination of some people is to leave to farmers the responsibility of providing food insurance for the nation. The idea is simply that farmers always should produce more than is needed. This surplus of production would decrease the total return to farmers, and farmers, therefore, would bear the whole cost of national food insurance. This would be unfair, of course. But, actually, it doesn't work out that way. Instead, farm production swings up and down in such a way as to leave both farmers and consumers insecure, food supply unstable, trade subject to too great fluctuation, and the cost to the nation much too large.

"The ever-normal granary plan is well designed to meet producer and consumer needs. In its simplest elements, the proposal is like Joseph's granaries of Egypt supplemented by our A.A.A. technique for controlling production.

"The first object of the present plan would be protection of the farmer from low prices, which, because of loss of export markets, occur in surplus years. This would be accomplished by a system of government loans on corn and cotton by the Commodity Credit Corporation.

"The second object would be protection of the consumer from possibilities of food shortage. This would be accomplished through storing of surpluses in years of high production for use in years of drought or crop failure from any cause. The supplies would be held, when advisable in the hands of the Government, which would be enabled by the pending Agricultural Adjustment Act amendments to take title to commodities on which loans had been made.

"Farmers would be protected against accumulation of too unwieldy surpluses and the Government safeguarded against investment of too large sums of money by the provision in the amendments for payment of benefit payments in kind. This means that the Adjustment Administration could make payments, to those farmers who wished, in the form of the commodity instead of cash as consideration for their co-operation in production control. In this way, too large surpluses could be dispersed by paying them back to farmers for production adjustment.

"I consider this plan an important step in assuring consumers that we shall have plenty without the waste that now accompanies the wide swings in production, and in giving farmers better assurance of fair prices.

"In its recognition of the essential unity of producer-consumer interests and its declaration of legal responsibility to both, the Agricultural Adjustment Act is pioneering legislation. I doubt if either the farmers or the consumers of this country realize the extent to which the Act has been made to function in their joint behalf.

"Nothing so much as the drought could dramatize the way in which the Agricultural Adjustment Act can be used to serve producers and consumers simultaneously.

"Suppose that instead of choosing to shoulder the responsibility of fighting drought, the Federal Government last year should have taken the course it took in the far less extensive but regionally acute drought of 1930. Suppose it had determined to keep hands off, had fought every one of the efforts that were made in Congress to provide adequate farm and consumer protection.

"If that had been the policy of our Government in 1934, the weather disaster of last year would have been appalling beyond any description. If the Agricultural Adjustment Administration had not bought them, millions of cattle that were saved would have died from thirst or hunger because of the lack of water and feed. Hundreds of thousands of farm people would have been utterly destitute if the Federal Emergency Relief Administration had not supplied work and relief. Markets would have been glutted with distress cattle and hogs which the farmers have been forced by lack of feed to try to sell to commercial buyers. Prices in livestock markets would have dropped under this pressure to a point where ordinary grade meat animals would have been absolutely worthless to their owners. Supplies of livestock would have been reduced by starvation to a degree far lower than they were, and the drought costs to both farmers and consumers would have been correspondingly increased.

"The Government chose in 1934 to accept responsibility which in 1930 it had dodged. The Agricultural Adjustment Act and other measures were used to the full by farmers and for consumers.

"For the farmers, the benefit payments provided a source of some income even if their entire crop was burned up. In addition to these payments \$111,500,000 was paid to farmers for livestock in the Agricultural Adjustment Administration emergency livestock buying program. This money helped the farmers stay on the land instead of joining the city unemployed. Seven million head of cattle and three and a half million sheep and goats which would have starved or died of thirst were bought by the Agricultural Adjustment Administration, slaughtered and the meat saved. Freight rate reductions and credit helped move animals to feed and feed to animals. The corn which had been held in storage under the Government loan programs helped materially in tiding farmers through the period of serious feed shortage.

"Further, the Agricultural Adjustment Administration encouraged farmers to plant emergency crops on the contracted acres. These crops, for the most part, were more drought resistant than corn and wheat and resulted in the production of more feed than would have been raised if the acres had not been shifted out of the basic crops of corn, wheat, cotton, and tobacco. The Agricultural Adjustment Administration offered farmers emergency incentives to save soy bean, hay and fodder. Seed supplies were gathered and credit made available to plant a crop this year. The Government's surplus relief purchases helped to maintain prices of farm products everywhere in the country.

"Every one of these Government measures to conserve food and feed was important to consumers. As a result of the emergency purchases more than 700 million pounds of meat products were distributed by the Federal Surplus Relief Corporation to the most needy — those on relief rolls. In all, over a billion pounds of food concentrates from Federal surplus purchases were allotted as life-giving rations to the Nation's neediest people. The conservation of corn and forage and the Agricultural Adjustment Administration payments for the sale of distress stock was insurance that farmers would keep all the breeding animals on the farm that they could. This is assurance to consumers of ample meat supplies in the future.

"The drought brought a heavy loss to producers and a rise in prices to consumers. Both effects would have been infinitely worse if the Government had not stepped in to soften the blow.

"This year the Agricultural Adjustment Administration has followed up by providing for expansion of production in every one of its most important programs. Restrictions on spring planting of wheat, and harvest of winter wheat sown for pasture have been removed for those farmers who agree to make corresponding reductions if necessary next year.

"If this maturing Nation thinks soberly about the future, the inevitable conclusion will be a new deal for its resources, which will substitute a broad policy of conservation, husbanding, and replenishment for the criminal carelessness and waste which have characterized so much of our past history.

"Solemn responsibilities must be met with great courage and no faltering. A strong and continuous effort to end the dust storm menace is essential. For the protection of all the people, positive action to check the menace of erosion of soil by wind and water is vital. The Soil Erosion Service, recently transferred to the Department of Agriculture, is already at work.

"Programs of the Agricultural Adjustment Administration are splendidly adapted to help this work along. One of the fundamentals of the adjustment program is its effort to get back into grass the lands plowed up to produce grain for export markets which no longer exist. This transition back into grass is to be further stimulated by the Administration. Benefit payments can be employed effectively to this end.

"In its double service to the producer and the consumer, this phase of the adjustment program is like the ever-normal granary, and is of great potential good. The ever-normal granary would conserve the crops of fat years for use in lean years. The transition back to grass in the drought and dust-storm area would conserve the fertility of soil against time of great national emergency and against the day of advancing maturity when every resource will be husbanded for consumer safety, and national welfare.

"Gradually we will build a land policy which will put an end to senseless exploitation of our resources. Given the chance, we can, through the ever-normal granary, husband our food supplies from years of plenty for years of shortage, and through the Adjustment Administration's plan, husband our soil fertility as we should. As time goes on and adjustment programs are perfected, they will place more and more emphasis upon encouraging the proper use of land.

"But those who want free rein to exploit the farmers on the one hand, the consumers on the other, apparently have determined to keep them from acting together to do those things which must be done if both groups are not to be the alternate victims of expansion and contraction, surplus and shortage, boom and collapse. In the drive of these exploiters to tear down what has already been built up, they are taking advantage of the disorganization of producing and consuming groups. They are making desperate efforts to prejudice farmers against consumers, and consumers against farmers so as to destroy their new found sense of unity.

"When the Agricultural Adjustment Administration was attacking immense surpluses, these selfish groups, eager to proclaim its downfall, declared that its attack had failed, that crops were larger instead of smaller. When the Agricultural Adjustment Administration concentrated its efforts to combat the damage of the greatest drought in United States history, they declared that the Agricultural Adjustment Administration had effectively accomplished all the shortage caused by drought. These misrepresentations have been repeated so many times that now we expect to hear them nearly every day.

"In a democracy there should of course be room for the fullest debate on public issues. I, myself, have repeatedly urged that the paramount questions of the time be threshed out in forums of the people all across the land. Such discussion and debate, if fully and fearlessly carried out, and without the interference of powerful special interests, would keep the people reminded of the common ground on which they stand.

"I believe that the Agricultural Adjustment Administration can be of immense usefulness to the people of both country and city. I believe the American people approve the Government's efforts to combat the consequences of drought, and that they would have disapproved Federal inaction.

"It has been said that 'eternal vigilance is the price of liberty.' Certainly there has never been a time in the history of the United States when the people needed to be more on guard against the forces, personal and impersonal, which tend to disunite them. Carried to an extreme, this disunity might spell the end of our Republic and the doom of our liberty. But if all of us, producers and consumers alike, remember to think of the other fellow's problem, and the other fellow's point of view, we shall continue on the path of progress."

PARTNERS IN AGRICULTURAL ADJUSTMENT

While farmers are seeking to get a fairer share of consumers' dollars by adjusting their production to domestic demand, scientists are helping farmers to increase their returns by finding ways to lower production costs, to utilize waste products, to develop new uses for old products. Together with adjustment in supplies by farmers, it can help in the solution. Here is a progress report on some explorations into new uses for old or waste products made by the Bureau of Chemistry and Soils.

New products from old crops come steadily out of the research laboratories of the Department of Agriculture. Waste challenges the talents of scientists. Chemists

in the Bureau of Chemistry and Soils who know that we throw away about half of what we grow naturally feel the urge to do something about it. They want to see what can be done with the pound of straw or fodder which is left over from the production of a pound of corn or wheat. They want to make something profitable out of the culled fruits and vegetables, the peelings and the seeds.

Cottonseed sales tell an old story of successful use of former waste material — a story of better income to the cotton farmer.

Sweet potato starch writes a newer chapter of the story. Sometimes as much as 50 per cent of the sweet potato crop has to be culled and kept home from the regular sweet potato market. Farmers feed some of these culls to livestock. Some of the otherwise good potatoes are canned. But most culls cannot be used profitably in those ways.

Chemists looked at these cull potatoes and saw starch — the kind of starch you find as “sizing” in glossy sheets and dress goods on the counter. White potatoes have a kind of starch, too, but not the kind that is satisfactory for sizing.

Yellow color had to be eliminated from sweet potato sizing before the experiments could be pronounced successful. The chemists licked that problem first. Next they worked at a satisfactory method of manufacturing the starch.

Finding ways of utilizing waste is only the first half of the problem. Second half, and sometimes the more difficult, is finding how the product can be put on the market at a price to compete with other products.

Experiment on the cost problem was started last year in Mississippi, in country where farmers were in difficult straits. By locating there the experimenters not only had easy access to raw materials but helped farmers in cut-over pine country who previously had marketed their products to people in lumber-mill towns, but with the passage of the lumber mills were without a market. Pine-stripped waste land of Mississippi is fine land for growing sweet potatoes.

Seventy tons of sweet potato starch came out of the experimental factory established there last year. Local textile mills bought it at 5 cents a pound. Farmers who grew the sweet potatoes made more money than they would have made if they had tried to grow cotton on their land. And that's not all. The by-product starch itself produced another by-product which was in turn put to use. The factory dried the left over pulp and the State Experiment Station fed it to beef cattle which brought a premium price on the market.

One test for practical usefulness of sweet potato starch in the laundry was carried on by the Bureau of Home Economics textile laboratory. Specialists measured the stiffening quality of sweet potato starch on fabrics in comparison with that of other starches such as wheat, corn, rice, dasheen, canna and potato. The Bureau experts “sized” pieces of thin, medium, and heavier cotton fabrics. Then they placed pieces of the starched fabrics in an apparatus devised at the Bureau which measures their stiffness value. Though stiffness produced in fabrics is not a complete test for the value of starch for laundry use, it is a primary one, and sweet potato starch compared favorably in stiffening quality with other starches of the same type.

Private industry is following the work of the Government experimenters and will likely take hold of the method when more work has been done in cutting the cost of manufacture. All comers will have equal chance to use the method because the Government scientific men took out a public-service patent to make sure that no one group could take exclusive profit from Government research.

Citrus fruit has valuable by-products, some of which were developed at the request of the industry a good while ago. Government chemists found ways to manufacture lemon oil, orange oil, citrate of lime, and citric acid from the fruit that was not right in color or size for the fresh-fruit market. Then came pectin, marmalade, and stock feed. Nowadays 45 to 50 thousand tons of oranges and lemons go to the by-product market and bring growers profits amounting to nearly a million dollars a year.

Citrus wines and cordials are the next form for channelling off the seasonal excesses. Instead of flooding the market with fresh fruit at one season of the year, growers may soon be able to turn their surplus products into wines and cordials for a year-round market. Citrus juices canned by the heat methods have already started their career as stabilizers of the fresh-fruit market.

Picture the possibilities thrown away in corn-cobs. Farmers put much time, work, and money into producing corn, and then they get no return from the cob, unless it is a small-use value as fuel or commercial value as pipes.

Government scientists, working long months and years in search for more-valued uses, have found in the cob "furfural," something like the stuff they use in making those hard rubbery trays you see around restaurants and cafeterias. It used to sell for about \$25 to \$30 a pound. Now Government research has found a way to make furfural from corn-cobs, oat hulls, and cotton hulls; and the cost, in carload lots, is about 9 cents a pound.

Future possibilities lie in other corn-cob discoveries. Lignin — the stuff that holds the cob and plant material in general together and makes it rigid — may prove to be a wonderful reservoir of potential wealth, possibly as great as coal tar. Since scientists first began investigating that by-product of gas light factories in England about 100 years ago, chemists have discovered 60 thousand different coal-tar products. Fast dyes, now made entirely from coal tar, might some day come from the lignin in corn-cobs.

Cellulose, found in straw, peanut hulls, oat hulls, and corn stalks, can be obtained from corn-cobs, though other sources are cheaper. From the cellulose beautiful textile materials might be made. Carbon, acetic acid, ethyl alcohol, and other chemicals are imprisoned in the corn-cob, waiting for the time when it will be commercially worth while to utilize them.

Threatened shortages ahead should mean research and planning now. Government chemists are at work at this instant to find a remedy for one such possible shortage. Chestnut trees are our main source of supply of tannin — used to tan leather. Blight has almost wiped out the chestnut. In ten or fifteen years this source will probably be exhausted. Already new materials are being explored.

Again the scientists have tackled waste materials. Pulpwood companies pay to have the bark from hemlock trees hauled away as waste. That bark, the research men find, is rich in tannin. They have found successful methods to extract the tannin. They have discovered ways to cut the cost of extraction. Other sources, for instance, the saw-palmetto, a pest to the Gulf States, are being explored.

Scientists warn consumers against expecting spectacular results to follow immediately on the heels of their discoveries. They warn farmers against planting all their crop land to cotton, potatoes, or corn and then expecting the chemists to find ways to use all of those products.

SPEAK UP, CONSUMER! — *H. A. Wallace and D. E. Montgomery*

"Back in 1933 farm leaders came to town to see if they could agree on a program which would help farmers to get more than 6 cents a pound for cotton, 3 cents a pound for hogs, 20 cents a bushel for corn, and 30 cents a bushel for wheat. The surpluses of those days were actually starving the consumer.

"Two and a half years have passed by. Many things have changed. With the exception of cotton most of the surpluses have disappeared and prices have risen until they are two or three times what they were in 1933. In the case of hogs, supplies are so short and the price so high, largely as a result of the drought of 1934, that the consumers have just reason for complaint.

"Farmers want to do all they can to increase the number of hogs in 1936 but they want to do it in such a way that hogs in 1937 and 1938 will not fall to one-third the price as it exists today. Alternating feast and famine are not good for either farmer or consumer. The 12-cent hogs of today breed the 4 cent hogs of tomorrow and vice versa.

"Can we avoid the extremes? Can we establish firmly the ideal of balanced abundance in the long run and work out a machinery for putting it into effect? Can we substitute balanced and stable production for the alternate expansion and contraction which first attract labor and capital into the processing industries and then drive them out?

"In the new Agricultural Adjustment Act as amended Congress has again and again stricken out the word 'reduction' and substituted 'adjustment.' We want to be in a position when unusual weather intervenes to adjust upward as rapidly as possible because we believe we owe as much duty to the consumer to prevent unduly high prices as we owe to the farmer to prevent unduly low prices.

"It will be a serious mistake for the farmer deliberately through the use of governmental power to produce a subnormal quantity of stuff for domestic consumption in an effort to get high prices. Consumers are learning that excessive production at low prices for a market which doesn't exist brings unemployment and bankruptcy.

"From a long-run point of view, we must pay as much attention to consumer equities and parities as to farm equities and parities in administering the Agricultural Adjustment Act. Continuance of agricultural adjustment activities on any other basis would not be justified.

"Consumers and farmers have a common objective with respect to the present situation in hog supplies. Both of them want those supplies increased. For many months consumers have been on short rations of pork and lard and the prices at which hog products have sold at retail have been a strain for millions of families.

"It is estimated that in the ten years 1920-1929 there were available for domestic consumption about 83 pounds of hog products per capita annually. In contrast to this figure, it is estimated that supplies available for domestic consumption in the marketing year beginning November 1, 1935, will be about 47 pounds per capita. The primary interest of consumers is that this shortage in the supply of pork and lard be remedied as rapidly as possible. The Agricultural Adjustment Administration recognizes that necessity.

"Nothing can be done under the adjustment program under consideration at this hearing to increase the supply of pork and lard that can come to market during the year beginning this November. From now until October, 1936, the quantity of pork and lard available for domestic consumption will be determined by hog production that is now taking place or has taken place this year, and will not be directly affected by an adjustment program for next year. Existing price factors, however, are expected to increase the production of hogs during the marketing year 1935-1936. That increased production will be reflected in increased marketing of hog products in the year beginning October, 1936. It is estimated that if there is no adjustment program, hog production during the coming year will be 30 per cent greater than in the current year 1934-1935. It is estimated also that a further substantial increase in hog production can occur in the year 1936-1937, which would result in further increases in the supply of pork to the consumer in the marketing year 1937-1938.

"The estimated increased production of hogs which would take place during the coming year in the absence of any program would result in supplies of pork and lard amounting to 62 pounds per capita during the marketing year beginning October, 1936, as compared with the 47 pounds per capita which is estimated to be available during the marketing year beginning in October, 1935. The farm price of hogs which is estimated for the larger production next year should result in retail prices that are substantially lower than prices prevailing in 1935.

"If there is to be a corn-hog adjustment program it should, in the interest of the consumer, permit the supply of hog products for domestic consumption to increase as rapidly as is consistent with the purposes of the Act. In the year 1935-1936 it should permit hog production to increase at least as rapidly as it would increase if there were no adjustment program, and it should aim for a further increase in that year if inducements for greater production can be provided for in the program. In the year 1936-1937 it should permit such further increase in supplies of pork and lard as conditions at that time will justify. Consideration of the consumer interest requires, in my opinion, that such increases be permitted under any program that may be adopted.

"Legislation on potatoes has two parts. Title I is the Adjustment Act, which makes potatoes a basic commodity, along with wheat, cotton, corn, etc., and authorizes the A.A.A. to use any of the methods outlined in the Adjustment Act to increase the income of potato growers. Title II is the Potato Control Act. This carries the compulsory feature, authorizes the determination of a national allotment, and levies a tax of three-fourths of a cent a pound on all potatoes sold in excess of this allotment after December 1, 1935. Because Congress failed to provide funds for enforcing Title II, the question was raised as to the possibility of using some of the methods authorized in Title I, such as voluntary acreage control with benefit payments, or marketing agreements. It was to consider this possi-

bility, among others, that the hearing was called on October 3rd. Such a hearing is mandatory under the law whenever a basic commodity gives promise of remaining definitely under parity price.

"When the hearing opened several hundred potato growers were present. Apparently most of the commercial producing areas from Maine to California were represented. Most of them said they wanted the compulsory features of the law put into operation, and the sooner the better.

"It may be that a compulsory potato act can be made to work if the vast majority of potato growers really want it. That is one important factor to determine. A referendum would be valuable in answering that question. That still leaves unsolved, however, the problem of preventing potato bootlegging.

"Potatoes don't go through any bottleneck like cotton; and the question is whether mandatory standard containers will prevent most of the bootlegging. In order to gain the support of the smaller growers and prevent petty bootlegging it may be necessary to raise materially the exemption on potato sales.

"This problem of Title II was not the only one discussed at the hearing. There was ample evidence submitted to show that potato growers have been in unusually severe trouble for two years. Contrary to what some have been saying, the adjustment programs for other commodities have had nothing to do with the potato situation. In fact, harvested acreage of potatoes this year is likely to be less than last year, and even less than in 1931 and 1932.

"Potatoes have been selling at far below parity because of the usual swing in acreage and production from year to year — 2 or 3 years of large crops, being followed by low prices, a forced reduction in acreage, and 2 or 3 years of small crops and high prices. The history of potatoes has always involved these alternate feasts and famines, and always will unless potato growers agree on some means of stabilizing acreage and production.

"On the basis of these past swings, potatoes could easily go above parity in 1936. If we have a program in effect, this could give the A.A.A. great prestige with farmers and disfavor with consumers.

"The Consumers' Counsel of the A.A.A. warned that any program which made potatoes a luxury would get, and would deserve, the hostility of consumers. I have no doubt that this accurately represents the attitude of the average consumer, and I only regret that outside consumer organizations failed to send representatives to the hearing. I strongly urge that consumer organizations watch for these public hearings, and send delegates to argue the consumer's case. It is of the greatest importance that the consuming public take an active part in the democratic mechanism we are trying to develop.

"So far as potatoes are concerned, both farmers and consumers should look deeper than the temporary swings in price. The problem here, as with corn and hogs, is to avoid the violent swings which harm every one except the speculative middleman.

"Consumers are entitled, I believe, to expect of any program which producers adopt for the control of potato production that it make available for consumption an adequate supply of potatoes in every year. Analysis of the price-production cycle in your industry has shown that producers will obtain the largest total income over a period of years by stabilizing their output from one year to the next as nearly as possible at the average or normal level of potato consumption.

"It is my opinion that consumers will not be injured by stabilization of potato productions at that normal level. The wide variations that occur in potato production are not matched by corresponding variations in consumption, for the consumption of potatoes is already more stable than their production. The low prices you get when you produce too much do not have the effect of making the consumers eat the entire amount. Low prices in years of excess production not only reflect the supply that enters into consumption but reflects also the surplus potatoes for which there is no market.

"Furthermore, the price declines that occur in years of excess supply are relatively greater to the producer than to the consumer. Transportation and marketing costs are less flexible than farm prices, and are not proportionately reduced when the price of potatoes goes down. The proportion of the consumers' potato dollar that goes to producers is smaller when potato prices are low than it is when potato prices are high.

"Consumers cannot legitimately demand that producers continue to allow their production to fluctuate widely above and below the quantity that normally is required for consumption. Indeed they may well find a common interest with producers in eliminating such fluctuations. Years of less-than-average production are as much a part of the potato cycle as are the years of excess production. Years of short supply work an injury to consumers that is not made up to them by intervening years of overproduction. When the supply is low the consumer cannot satisfy his desire for more potatoes by his recollection of how many he had last year and how cheap they were.

"This opinion that consumers can make common cause with producers in stabilizing the potato supply is stated only upon the assumption that the level at which you stabilize will provide all the potatoes that consumers normally need and use. Consumers will not approve a plan that seeks to make potatoes scarce. Any program that has either the effect or the appearance of making potatoes a luxury will certainly be resisted, and should be. I do not believe that that is what producers want to do, and a stabilization of output at the normal average level of consumption is not a program of scarcity.

"Fortunately the history of potato production and marketings during the last five or ten years indicates that it is possible to determine with reasonable accuracy our average or normal requirements for consumption. While both production and marketings have been fluctuating between high and low extremes, there is indicated a rather definite average line which can be accepted as a goal of stabilization, for the next year or two at least.

"If potato producers can hold their output at that average level, it is my opinion that consumers will not stand to lose by such a program, and may gain by it. In saying this I wish to make clear that the proposal of programs is not within the province of the office of Consumers' Counsel. I confine myself to stating a goal which would seem to give due recognition to the consumers' need for an adequate food supply. This is in conformity with the recognition of the consumers' interest which is included within the purposes of the Act."

WHY PRICE STUDIES

The Division Maps the Industrial Front to Guide the Consumer's Disposition of His Forces as He Attacks the "Trouble Spots" and Wastes Which Deny Him Goods.

An end — the great end — of public policy is a betterment of the American standard of living. In a society like ours, where a man takes his labor to market and fetches away the wherewithal of existence, the standard of living is pent in between the income he receives and the prices he must pay. It is by the grace of the margin between the two that man gets his living. As the margin is narrowed, his claim to the products of the industrial system is restricted. As the margin widens, he has increased access to the necessities and the comforts, the opportunities and the frivolities of life.

Man must, as it were, carve out for himself his own living with a pair of scissors. One blade is his money income; the other blade is the purchasing power of his dollars. If — in response to "labor pressure" — wages are advanced, and, as a result of "increased costs," prices go up just as much, he is not better off. If — in response to "consumer pressure" — prices are driven down, and wages are made to take up the shock, he is about where he was before. A general drive for higher or for lower prices all along the line is like the performance of the White Rabbit in Alice in Wonderland who had to run like everything to remain in the same place.

It is the relation of income to outgo which counts. If an advance is to be made in the standard of living, income must increase faster than prices, prices must fall faster than income, or, best of all, income must increase while prices are falling. In a utopian world of neatness and order, such an end would be impractical. In the imperfect universe of here and now — in which almost every aspect of industry could stand a bit of improvement — it is the order of the day. The advance in the standard of living since the middle of the last century has had its roots in a march of efficiency which has brought in its wake lower prices.

In an intricate industrial system such as ours, public policy must concern itself with many subjects. Money, credit, transportation, bankruptcy, the tariff,

monopoly, and what not are all affected with a common interest. The formula upon which the standard of life rests has as many terms as there are matters of concern to the Nation. But among the most persistent of these is the question of how to bring the good things of life within the reach of the great masses of the people. The problem has many aspects, which reach out like so many prongs to the fringes of our culture. But it is dominantly a matter of price.

It is for that reason that the Division inquires into prices. It passes in review the prices of the essential commodities — such as coal, milk, gasoline, shoes, women's dresses, ice, and movies — which have or might be made to have a secure place in the standard of living. Its concern is not primarily with what prices are, and a price reportorial service can be only an aid in a larger inquiry. Its point of attack is what lies back of a price — to make it high or low — to restrict or enlarge supply — to bring it within the reach of the few or the many. A price is really a point upon which all the order and disorder, all the efficiency and the waste of an industry converge. It catches up in a single pecuniary magnitude all the resources, arrangements, and activities which go into the availability of a ware of trade. Accordingly, inquiry into prices is essentially a series of studies in industrial diagnosis.

The inquiry has a single clear-cut objective. If sugar, books, bread, gasoline, medical service, or education does not have a secure place in the American standard of living there must be a reason. And the reason lies in some concrete thing that keeps an abundant supply out of the reach of the people. It is, therefore, necessary with each essential commodity to ask: What specifically stands in the way of the production of an article of quality, at a price which the ordinary person can afford to pay, in a quantity large enough to meet the needs of a people?

But even such questions are general; and if any inquiry is to be useful, each of these studies must get down to the concrete. Is it because some ingredient which goes into the fabrication of the commodity is limited in quantity, or is it because the technique of production is backward, and, if so, how does its technical efficiency compare with that in kindred industries, and what seems to be responsible for the arrested state of the industrial arts, or is the machinery and equipment obsolete, and if so, is it because credit is not to be had or new capital is not being drawn into the business. Are there lessons to be learned from industries which have overcome similar hazards?

May it be that the personnel of management is sluggish and inefficient? May some device of financial control lodge discretion far from the facts and lay a restraining hand upon energetic officials who are ready to go? May backwardness lie in an overdone competition, in habits in high places of taking things for granted and letting them slide, in an extravagant capital structure that refuses to be liquidated?

May the root of the matter lie in some established institution? May a patent arrest, rather than promote, the advance of knowledge and its application in process and mechanism? May the ways of trade be so much encased in custom that there is a taboo upon improvement? May an industry be in such a state of disorder that every man is fully occupied in defending his own competitive position, and there is no energy left for an attack upon the common problems of the industry?

May the consumer himself be to blame for allowing himself to be recreated in the unthinking likeness of acquisitive salesmanship? Has he fallen into the habit of requiring costly services, in demanding extravagance in packaging, in failing to pay for what he buys, in the practice of an irresponsible art of purchase? Or may the source of high prices lie in waste, lack of economy, or needless duplication in the merchandising processes which stretch away from factory to retailer? Or may there be a monopoly, a gentlemen's agreement, "a conspiracy in restraint of trade," which builds up price, restricts output, or blocks free entrance of goods into the market? But such questions are only samples; they must vary from study to study.

It is of the essence of the matter that industries are not alike. One does not have to venture far into the miscellany of industrial order to discover how variable these patterns are. Each presents its own degree of efficiency, its own trend toward order, its own distinctive response to improvement. The factors which make for high price and the barriers which keep supply down are as diverse as the commodities to which they relate.

The technical processes of automobile manufacture and of the building trades are so diverse as to seem to belong to different centuries. In railroads the advance of technology has been a series of arrested jumps; it took the threat of the motor-bus to end a trio of sterile decades with the streamlined train. The generation and application of electricity has been an uninterrupted march. In textiles the market refuses to take what the mills can offer; yet a method of merchandising which piles up retail price to three or four times factory cost is hardly the best which human ingenuity can devise. In bituminous coal a medley of mines make up a chaotic industry; in cigarettes, a mechanized process of production carried on in a neat and articulate industry, has sent costs tumbling down — and has enabled the Government to collect a substantial revenue. In each study it is specific failure in performance which is to be discovered and traced to its concrete sources.

Any inquiry is analytical; it is essential to a drive all along the line upon scarcity and waste. It is intended to reveal the points of attack in a continuing campaign for a greater abundance of the good things of life. An industrial system is not all of a kind; the technical processes of different industries are in different stages of advancement; their disorders and confusions invite no general statement. It is necessary to study progressive as well as backward cases. In the knowledge that somewhere it has already been done lies the assurance that it can be done again. Above all, the sources of disorder, the checks upon production, the barriers to a free market are not abstractions; they are things that can be enumerated, specified, and located.

A better standard of living for the American people is not going to be achieved by a single master political stroke. No rabbit is to be pulled out of a hat; no bit of magic is to be made to do the trick. It is an abiding work for a nation of people. The task of price studies is to supply a bit of the knowledge essential to a protracted campaign. In material wealth, human resources, and technologies the raw materials of a state of welfare are all here. An effort of the people, based upon understanding, can quicken potential resources into a truly American standard of living.

CONSUMERS FACE THE NEW DEAL IN FOREIGN TRADE

Every consumer is involved, whether he is aware or not, in the protection this country gives its domestic business against foreign goods. How much this protection costs consumers just in higher prices, nobody has yet been able to figure. One estimate has been made for 21 products only, imports of which make up less than 15 per cent of the total dutiable imports. On these products alone, cost of the tariff to consumers, it was calculated came to more than half a billion dollars.

You know the big defense of tariff-protected prices. "Let cheap goods in, and down come American workers' wages." Perhaps some clever statistician will some day be able to figure out just how much more workers have gained in tariff-protected wages than they have lost in the tariff-protected prices of things they have to buy.

Somebody has checked on the number of workers who might possibly have been helped in protected industries. This study showed that for every worker apparently helped, three others get no benefit at all. As for protecting American workers' wages, here's an interesting comparison: In thirty-six typical industries that are either on an export basis or not aided by tariff protection, the average pay in 1929 was \$1,635; in thirty-six highly protected industries it was \$1,109. Furthermore, the lowest rate in the unprotected industries was almost exactly the same as the highest rate in the protected industries.

Look at the other side of the foreign trade picture. In 1930 we put up a tariff higher than any other in our history. Our foreign customers followed suit, raising their tariffs, imposing quotas, restricting outright many imports.

Side by side with this fact put these figures. Five years ago every family in Texas had an interest of \$448 in the export business done by that State; in 1932, that interest had shrunk to \$204. Families in Louisiana each had an interest in that State's exports of \$420 in 1929, and only \$152 in 1932. Wisconsin families had an interest of \$168 each in their exports in 1929, and only \$20 in 1932. New York families' share in that State's exports was \$304 each in 1929 and only \$80 in 1932.

Altogether we are selling abroad around \$3,500,000,000 less than we sold in 1929, partly because of trade barriers raised by other countries, partly because this country stopped lending money with which other countries could pay for our products. To continue to buy from us these countries had to be able to sell to us, but our own high tariff made that very difficult. That was a third important reason why trade was choked up.

What loss in export trade has meant in loss of jobs no one has figured, but it would be difficult to prove that it has not contributed to the worst unemployment this country has ever seen. In 1929 the Secretary of Commerce estimated that cutting off our exports would mean a direct loss of jobs to two or three million workers. This fails to count in all the workers employed in supplying goods to workers directly affected.

Farmers, like city workers, have taken their licking from this loss of foreign markets. Total exports may represent only a small fraction of our total production, but agricultural products usually make up over 40 per cent of all exports. In 1933 six agricultural commodities alone — cotton, tobacco, lard, canned fruit, wheat flour, and fresh apples — accounted for a third of all exports. Cotton farmers had been accustomed to look to exports to take up half their crop; tobacco growers, a third of their crop; wheat farmers, a fifth of their crop.

You would have a difficult job to prove to farmers that losing that much of their foreign outlets for their crops had nothing to do with piling up the greatest unsold supplies of cotton, wheat, tobacco, and other crops this country has ever seen, or with cutting their income in 1932 to the lowest level since the war. It was the necessity of adjusting production to this loss of export markets that brought about the whole crop-adjustment program of the A.A.A.

Tangled and confused, this problem of foreign trade bobs up in the lives of consumers at almost every hour of the day. Suppose we give up the struggle, and take — as some people urge — to being “self-sufficient.”

Visions of empty coffee cups rise to smite us. We grow no coffee, or tea, or cocoa. If we are going to have that morning cup we have to import it. Then there's the morning newspaper. Half of the newsprint we use comes from abroad. Silk for that tie or socks or underwear — none of it is grown here; all of it is imported. Three-fourths of our furs come from abroad. All the tin and rubber we use is imported. Other consumer goods, plentiful in some seasons, are scarce in others.

Is it worth the trouble to change our tastes and habits, learn to develop and accept substitutes, readjust our industries to provide them, and provide jobs for workers who would be thrown out of work, all for the sake of being “self-sufficient”? Pioneer families came fairly close to being self-sufficient, but it was a hard life.

Giving up imports must mean giving up exports. We can't sell to some one else if we will not buy from them. For some years we tried the experiment of doing foreign business on the rule you-buy-billions-from-us and we'll buy-millions-from-you. We called that having a “favorable balance of trade.” It cost us billions of dollars. It is a cockeyed rule that ends up in neither trade nor favor.

To farmers, giving up exporting would mean they would have to grow other things on 50 million acres because even if all of us in this country had bigger incomes, we still could not eat up all the wheat or wear all the cotton, for instance, which our farmers usually produce. Hundreds of thousands of farm families would have to move elsewhere, find other farms or other jobs, if possible. Tradesmen supplying them would have their business wiped out. Industries like those making typewriters, locomotives, motorcycles, kerosene, turpentine, would have to develop bigger business here or close down some of their plants, fire thousands of their workers.

Major adjustments like these could be made if they had to be, but are they worth the price?

Contrariwise, suppose we let down the high walls we have built up against foreign goods and invite them all in. What guarantee would we have that under such circumstances we would be able to sell enough more goods abroad to compensate us for letting down the bars? Other countries, eager to sell to us may have — in most cases do have — high walls against our goods.

What shall we do, then, if we do not want to give up our coffee, our rubber

tires, our silk and furs and other things, and still can't sell abroad all we would like to sell?

Middle courses are often the way out of such doughty problems, and this is the course that Congress took last year when it passed a tariff bargaining law. Under this law, Congress said: "Let's bargain for trade. Let's propose to Country X that we will knock down our tariff wall against them if Country X will knock down their restrictions against us. Naturally when we come to thrash out the terms of such a bargain there will be some tariffs we do not want to touch, but there will be others on which we can give way. We have specialties the other country wants; they have specialties we want. Letting them come in won't hurt either of us. On the contrary, consumers can then buy them cheaper and in greater abundance and that will mean more jobs and better pay for the workers who produced them."

Other countries had already made scores of bargains of this sort. There was nothing especially new or original about the idea. It just took time and a great depression to enable us to see the sense in applying to our business with foreign countries a simple rule that traders have always gone by in their domestic business.

Cuba signed the first of the tariff bargaining treaties with the United States in August, 1934. Farmers up in Aroostook County, Maine, had a sample of what this treaty could do to alleviate a critical situation. A big potato crop had driven down prices to 50 cents a barrel. Then orders from Cuba began to come in. In one day, sixty-two carloads of potatoes were loaded in vessels to go to Cuba. More orders were on hand to be filled. One of the provisions of Cuba's treaty with us was a 20-per cent reduction in their tariff against our potatoes.

First rule of these tariff concessions is that they shall not be allowed to injure legitimate domestic business on either side. Reductions have been made in our tariff on imports of Cuban fruits and vegetables, but they apply only in those months when our domestic supplies are small. For instance, Cuban lima beans can be imported under a duty of 1.4 cents a pound, but only from December 1 to May 31; in other months they must pay the full rate of 2.8 cents a pound. The same kind of seasonal limit holds for imports of tomatoes, cucumbers, eggplant, okra, peppers, potatoes, squash.

Sugar, Cuba's chief export to us and her main source of income, has its duty lowered to practically 1 cent, from 2.12 cents. But the total amount of sugar to be imported is controlled. Producers in Cuba get the benefit of a higher return there and the quota keeps prices from falling to the injury of producers here. Tobacco filler, used in the insides of cigars, gets a lower rate, too, but the amount permitted to be imported is limited to 18 per cent of our domestic consumption the year before. As domestic consumption increases, more Cuban tobacco can come in. This has the effect of keeping consumer prices from soaring if consumption goes up. Other concessions — most of them cutting the tariff against Cuban products in half — were made on grapefruit, limes, pineapples, honey, jellies, fruit pastes.

Cuba's concessions on American products lead off with a reduction in the duty on lard. The old rate of \$9.18 per hundred pounds is cut to \$2.73 and by September 3, 1936, will be reduced to \$1.45. In addition, Cuba has agreed to remove at that time the consumption tax of \$1 per 100 pounds. In the first two months after the treaty was signed, Cuba imported 8,668,000 pounds of lard from the United States, almost as much as in the entire year of 1933. Other concessions cover other American agricultural products, such as vegetable oils, wheat, pork, potatoes.

Exports of American agricultural products on which the most important concessions were made increased altogether in the four months from September to January 1, from \$1,883,000 (their average for those months in 1932-1933) to \$3,648,000 in 1934. Imports of Cuban agricultural products, on which our most important concessions were made, advanced in the same period from \$16,263,000 to \$48,951,000.

Brazil, the country's second largest South American market, is the second country to draw up a reciprocal tariff treaty with us. When the Brazilian Parliament approves, this treaty becomes effective. Under it we agree to keep Brazil's coffee on our free list. Coffee is often a favorite product for duties. England and Canada both put a duty of 3 cents a pound on it except when the coffee comes from British countries. Cocoa beans are also to come duty free into this country. Brazil nuts will come in with half the old duty.

On the other side of the ledger, Brazil proposes to reduce its import duty on

28 items — such things as canned vegetables and fruit, powdered milk, common soap, automobiles, etc. — and not to increase present rates on 13 items — such as fresh fruit (duty free), agricultural machinery (duty free) refrigerators, equipment of various kinds, motion-picture films, etc. In terms of 1933's trade, 31 per cent of our total exports to Brazil will benefit under this agreement.

Third treaty — working out the new plan of swapping trade advantages — is with Belgium. This was signed February 27. Over a quarter of our export trade in agricultural products benefit by concessions of one kind or another made by Belgium in this treaty, and over half of our exports of industrial products. Most important of these concessions are on automobiles; office machines; linseed oil-cake; tobacco; fresh, dried, and canned fruits; radio receiving sets and tubes; canned fish; lumber; leather; oatmeal; meat and lard, etc.

One-quarter of all of our imports from Belgium are affected by concessions made by us. Scarcely one of these imported products competes directly with products we manufacture. A number of them are used as raw materials by domestic manufacturers. Food affected by our side of the bargain are such small items as hot-house grapes, chicory, endive, and canned peas.

Here are three, the first three, steps in the new tariff-bargaining program. Others will come later. Behind them is the idea that consumers on both sides should be enabled to buy those goods which are produced cheapest or best by the other country; that in opening our doors to such products we can contribute to the prosperity of our own agriculture and industry.

SUPPLYING FOOD FOR NORMAL CONSUMPTION

If all the food that went into kitchens and such commercial processing plants as canneries and bakeries were divided up evenly among the whole population, each of us would have had about 1,422 pounds a year in the 5 years 1920-24. In the "prosperity" years, 1925-29, our average went up only 50 pounds to 1,474. During the depression, when thousands of families took severe cuts in their standard of living, our national per capita average of food consumption dropped only 20 pounds to 1,454, still well above the average for the first 5 years after the war.

Drought has pushed this question of food supply into the front of many minds this year. Consumers feel a food-supply consciousness through high prices of drought-reduced supplies. To farmers the consciousness is natural because supplying food is their business. Today they are realizing that any solution of their business problems must be based on some knowledge of what is likely to be needed to feed American people in the coming years.

How much of the more important foods do we usually consume in a given year? How do these amounts compare with the amounts which nutrition experts say are adequate for good health? Are food habits changing so that greater or smaller amounts of particular food products will be demanded in the future than in the present?

To these questions and others the Division gives in answer some facts marshalled by research experts in the A.A.A. and the Department of Agriculture. In the following pages we sketch in the rough outlines of the changing food consumption picture.

Most arresting fact about changes in the total amount of food people eat from one year to the next is the lack of change. Prosperity may come and go, consumers' incomes rise and fall, yet the total poundage of food America eats goes on almost the same. Take any 5-year period since the war — such as the periods given above — and compare it with any other 5 years in the same post-war period and you will see that there has been remarkably little change in the total per capita consumption of foods.

Such averages tell nothing of the relative amounts of food which poor and rich people have eaten in these periods. They are theoretical averages in the sense that they represent all food sold divided by the total population.

Individual foods within the grand total tell different stories. Though foods classified into main food groups kept within a comparatively stable range of volume of consumption, the figures tell tales of swift rises of some foods in public taste and gradual falling off in popularity of others.

Cereal consumption's downward trend has been noticeable to economists for a

long time, showing in figures as far back as 1889. Apparently this decline was halted in the '20's. During the depression when people might have been expected to eat proportionately more of the low-cost sources of energy, the decline in cereal consumption set in once more. Consumption of wheat flour, easily the most important cereal food, apparently increased in the first half of the decade but sagged during the 1930-33 depression years. Rice figures as importantly in average consumption at the beginning of the '30's as 10 years earlier, and cereal breakfast foods seemed to take a gradually larger place in the national market basket from 1924 on, but average consumption of cornmeal declined steadily from 1920. Most of this loss in cornmeal seems to be due to smaller demand from people in cities and villages and not to any lessening of demand from farm families.

Potatoes, another low-cost source of energy, dropped in consumption steadily through the period from 1920 to 1933.

Lean meats, poultry, and fish — *pièce de resistance* of good living to many consumers — decreased in consumption slightly through the decade ending in 1934. Not all meats held to this fairly steady course. Beef consumption slid off during post-war years while pork apparently picked up, continuing what looks like a gradual shift from beef to pork begun in pre-war days. Poultry and fish consumption, measured as accurately as possible, showed little change in consumer demand from 1924 to 1934.

Biggest meat eaters seem to be in the West, smallest in the South, where poultry seems to be a special food attraction. Fish consumption seems highest along the Northeastern Coast.

Egg consumption increased about 10 per cent during the top years of "prosperity" over the first half of the decade of the '20's. Hard times halted the rate of advance, but eggs kept up a slightly higher average consumption level in 1930-33 depression years than in the previous "prosperity" years.

Dairy products came steadily into their own with consumers during the nineteen-twenties, started backsliding in 1932, and by 1934 lost considerable ground. Average consumption in the depression years 1931-33, however, was greater than in "prosperous" 1925-29 in the case of milk and cream, butter, and evaporated milk. In the case of cheese, ice cream, and condensed milk, it was somewhat smaller.

Fruits occupied an increasingly important spot on the national marketing list during the '20's, then lost during the depression much of their gains. This pattern does not apply to each individual fruit. Consumption of citrus fruits stepped up not only during the "prosperity" years but even more during the 1931-33 depression years. Melons moved little one way or another in average consumption. On the reverse side, apples — easily the most important among the fresh fruits — declined at varying tempos throughout the 14 years from 1920 to 1933. Dried fruit consumption showed little change.

City consumption of vegetables, the group including all but potatoes, followed the same pattern as fruit during "prosperity" years, but unlike fruit held their gains in depression years, 1930-33. Increases in average consumption of asparagus, beets, carrots, cauliflower, celery, lettuce, and peppers, accounted for most of the increases. Potatoes fell slowly and unevenly from favor from early post-war days up to the latest figures.

Sugar and syrup gained in consumption from the early to the late '20's, dropping sharply during depression years to a lower level than the average for the whole 14 years, 1920-33.

Coffee, tea, spices, and such groceries made a small but definite gain in the years covered. The same holds for beans, peas, and nuts, while fats stood during the 1930-33 depression years at almost the same level of consumption as in 1920.

Interesting sidelight on this first sketch of changing American habits of eating is the possibility that the trend of America's consumption of many food groups is in the direction of the amounts of food prescribed by nutritionists as acceptable from the point of view of health. Using Dr. Stiebeling's "Diets at Four Levels of Nutrition and Cost," one can measure past consumption from the point of view of nutrition authorities.

In milk consumption, our recorded gains, while leaving us far down between the amount of dairy products required for the lowest "restricted" emergency diet and those for the "adequate diet at minimum cost," would seem to point — since they

are gains — toward the more generous diets from the nutritional point of view. Still, average consumption in 1920-34 was well under the requirements for the latter diet.

Lower cost diets naturally call for larger amounts of cereals and bread than the higher cost diets. Our actual consumption in 1920-33 was very close to the amounts called for in the "adequate diet at minimum cost."

Our fruit and vegetable consumption had come up before the depression to a per capita figure well above that called for in the "adequate diet at minimum cost." For the whole 1920-34 period it stood midway between the minimum and moderate cost adequate diets.

Of sugars, we still eat more than is called for even in the "liberal diet" which takes no account of pleasure spending but budgets the food expenditures on the basis of their most needed nutritional returns. Our decrease in sugar consumption since the depression, which has more than wiped out the gains of the prosperous years may indicate more than a temporary trend away from this high quota.

In fat consumption our trend is actually above and beyond the quota of fat called for in the "liberal diet" which has the highest fat requirements of the four diets.

Lean meat, fish, and egg consumption during the 14 years 1920 to 1933 averaged relatively high in the diet schedule, almost half way between the "adequate diet at moderate cost" and the top level of the "liberal diet."

Consumption estimates are difficult and doubtful at best, but those Government experts who know best the doubt and the difficulties believe these glimpses of our past and present eating tendencies to be suggestive of what we may expect in the future.

YOUNG CONSUMERS

Nearly 50 million of America's consumers are under 20 years old. That means almost 4 out of every 10 people in the country. Today these young consumers are playing a vigorous part in our trends of consumption. Tomorrow they will provide the direct demand which America's producers must meet.

This new generation is already the product of a set of nutrition ideas and practices entirely different from the ones on which their parents grew up. Already these changes are registered in statistics of acreage planted to new crops, in carload shipments moving from new producing areas to new markets in new seasons. Eating habits now developing will determine the way future farmers plan their crops and use their land.

Spring fever shows up at an inconvenient time in the school year. Just when extra spurts of pep are needed to round out the year in class work, to go out for the spring play, for spring football practice or baseball or track, even our usual quota of ambition seems suddenly to be missing.

Nutrition experts advise students who find themselves in this plight to look to their diets. Wintertime is likely to be a period of short-changing our bodies in many of the elements they need, particularly in foods like fresh fruit and green vegetables which are not so cheap or plentiful then. Cold weather whets appetite for sausage and pancakes and syrup, for candy and hot chocolate, leaving milk and salad trailing along behind.

To feel adequate to the demands of school life, you need an adequate diet. Here is the framework on which to build this adequate daily list:

Plenty of milk

(at least 1 pint, preferably 1 quart a day)

Plenty of fruits and vegetables, including

(1 green leafy vegetable (like spinach) a day)

1 raw fruit every day

Meat or egg or fish (one serving a day)

Fill out with what you like, but go slow on sugar

Athletes will want to add calories in the form of cereals and potatoes and sweets. Girls who take most of their exercise in spectator doses will probably go heavier on the salads than on the fats and starches and sweets, remembering that one chocolate malted milk with ice cream adds up to 700 calories — a quarter of her total daily calory needs — and even a chocolate caramel makes its contribution of 50 calories.

Whether pep, endurance, speed, sparkle, or beauty seems your special spring-fever lack, the reason may go back to the same dietary lack. To give complexions a chance, to get hair into shape for shining, to bring figures into line with their optimum measurements, analyze your diet by the "adequate" yardstick.

Students of Hiram High School, in Ohio, wanted to get from their education help in facing their more practical after-school problems. Proof is in the story of the growth of their Consumers' Course from its beginning as a week's project in the regular course in Economics, to a popular set of projects taking about 3 weeks, during the next year, then into an adult education course, and finally into a full semester course for Juniors and Seniors. Twenty-nine projects range from practical experience in buying and grading through study of economic, legislative, and Governmental aspects of the consumer movement.

One example of the way theory was combined with practice, reported by the principal, was the application of the principle of big-quantity buying to the consumer problems of the school band. By buying trombone oil in gallon quantities instead of two-ounce bottles they brought the cost of a gallon down from \$36 to 60 cents.

ARE FOOD PRICES TOO HIGH OR ARE SUPPLIES OF MANUFACTURED GOODS TOO SMALL?

To the average consumer fair prices are often prices that are continuously shrinking. A retail price is too high if it happens to be higher right now than it was a short time ago. Contrariwise, many producers think they see their prosperity in constantly rising prices.

This conflict between producer and consumer goals doesn't make sense. We know well enough that all producers are consumers, and practically all consumers are also producers. Even if this were not the case, it would be common sense for producers and consumers to come to some understanding with each other and to give up the impossible task of trying to ride the same horse at the same time in diametrically opposite directions. That kind of thing is amusing at the circus, but it doesn't buy groceries and it doesn't promote an abundant supply of commodities.

First essential to arriving at an understanding is that each interest speaks for itself. Having for the most part no means of attacking their conflicting problems together, they can hardly do otherwise than go it alone and make the most of their individual viewpoints. Especially is this true of the consumer whose ways and means of getting himself represented in the deliberate processes of Government, trade groups, and courts of law seem always to lag behind the more highly developed methods of other groups.

Agriculture's and industry's enlarged scope of collective action which has come to pass in the last few years may lead to a more definite drive among consumer groups to develop a representative mechanism of their own. It is to be hoped that it will. But we all recognize the peculiar difficulties which consumer groups must overcome if they are to approach the trade group or the farm group in effectiveness of action.

Buying commodities for home consumption is probably the most diverse industry in the world. There is no one objective like the wage rate or the schedule of selling prices upon which intelligent consumer interest can concentrate its efforts. It must become expert in all industries and must learn how to treat with all interests, for the act of consuming stands as the end point of all of them and each of them bears rather directly upon it.

No office in the Federal Government can handle the whole problem of consumer representation, but governmental representation can aid. A new start along that line was made this year when the President by Executive order set up a new office known as Adviser to the President on Consumer Problems, responsible directly to the Chief Executive, and comprehending within its field of interest all Government activities affecting the consumer. In the final count, however, consumers must learn to speak for themselves, and not only to Government officials but to other economic groups as well.

Are food prices too high, is a complex question, and the answer to it calls for the consideration of many things. It is both a question of statistics — that is, the

measured facts of the past and present — and a question of objectives — that is, our private and public purposes respecting the present and the future. Food prices that are too high for some consumers may not be too high for others; food prices that are low enough for all consumers are probably too low for producers; food prices that are too high for all consumers are obviously too high, also, for producers.

Today's acute interest in the cost of food arises from the fact that food prices have been going up for almost 3 years. In October, 1935, food prices were 21 per cent higher than in October, 1932. During the past year certain food items, notably meat, have increased rather sharply. These spectacular price advances stick in one's mind more acutely than the general level of food costs which in October, 1935, were only about 7 per cent higher than a year ago.

Food prices are not the only things that have been moving upwards, however. Factory payrolls climbed 70 per cent from October, 1932, to October, 1935. Farmers' cash income, including benefit payments, moved up 90 per cent.

Most of us agree that conditions in October, 1932, were not the kind of conditions that any of us would want to continue. Food prices in that month had fallen 34 per cent from their 1923-25 level, but factory payrolls had dropped 55 per cent, and farmers' cash income was off more than 60 per cent.

Better perspective on present costs comes from comparing them with a period which we might be more ready to describe as normal. For this purpose the average for the years 1923 to 1925 is taken to represent conditions before the depression, since data are not yet available on the revised food index for the years 1925 to 1929.

Retail food prices are now just 20 per cent below the 1923-25 average. Factory payrolls are 25 per cent below. Farmers' cash income, including benefit payments, is at the same level as factory payrolls.

Payrolls in wholesale and retail trade, compared with 1923-25, are slightly higher than factory payrolls and right on a line with retail food prices. Railroad salaries and wages are considerably lower, and coal-mine payrolls still lower. Wages in public utilities other than railroads have been reported only since 1929, and compared with that year are relatively higher than either factory payrolls or payrolls in wholesale and retail trade.

While the average of all food costs is 20 per cent below 1923-25, some foods are closer and some are farther away from their pre-depression level. Meats are 1 per cent above 1923-25 costs. Cereals and bakery products are also relatively high, within 6 per cent of the 1923-25 average. Eggs are 15 per cent below, while dairy products and fruits and vegetables are now selling at prices 26 and 47 per cent, respectively, below the prices at which they sold in 1923-25.

Foods, of course, do not have the only claim to the family purse. Workingmen's families spend about a third of their money on this item and two-thirds on all the other necessities of living. By June, 1933, total living costs had fallen about 25 per cent from 1923-25, which was much less than the decline (55 per cent) in factory payrolls, and the same as the drop in payrolls in wholesale and retail trade. At that time food costs had declined more than any of the six classifications included in the cost of living index. They were down 35 per cent.

From June, 1933, to July, 1935, the latest date for which this index has been reported, the cost of living increased slowly to about 80 per cent of the 1923-25 average, or just about 6 points over the 1933 low. Food costs had come up more rapidly than the other five items in the list, but stood in July, 1935, at the same level relative to the predepression figure as the cost of living as a whole. The rise in food costs was followed closely by house-furnishing goods (up 16 per cent) and by clothing (up 14 per cent). Three other items (miscellaneous, fuel and light, and rent), showed resistance to the depression, and with the exception of rent, have continued at a relatively high level.

Now consider what has happened to the spread between farm prices and retail prices of food commodities. This comparison is based on 10 important foods which constitute a large part of the average American food bill. Figures are not available on all foods. In the "spread" is included the total amount taken for transporting, processing, and marketing of the 10 foods by all those who intervene between the farmer and the consumer.

Two things are important to watch in the movement of this spread: One is the actual amount of increase or decrease; the other is the change in the proportion of consumers' dollars going to middlemen. During postwar years and up to the depression, the spread moved along a fairly steady level. The drop in retail values during the depression resulted also in a drop in the margin, and since the upturn of recovery in 1933 the margin, or spread, has been approaching higher levels again. But the decrease in the spread during the depression was relatively less than the decrease in retail values; that is, the proportion of the consumer's dollar which did not go to the farmer, increased as the depression advanced, and since 1932 has been declining. Present spread between retail and farm values is 9 per cent less than the 1923-25 average.

These, then, are the statistics that bear on the question, "Are food prices too high?" By these measures the cost of food does not appear to be out of line with other factors measuring the extent of recovery. But these measures do not tell the whole story. They do not take into account the serious unemployment problem with which we are still confronted. Furthermore, they do not reflect the fact that when there is a shortage, as in meats at the present time, it is always the low-income families who must do without. They do not answer the question, how to get an adequate diet to millions of people who are not earning enough money to buy the food they need. There is no doubt that the cost of food remains a very serious matter to large numbers in our population.

This is not a new situation. It existed also in 1929 when we flattered ourselves that we were enjoying prosperity. It became much worse as the depression advanced, and while it is certainly better now than it was in 1932, the fact that large numbers of people cannot buy enough food stands as a challenge to any one in private business or in public office who has the slightest concern for the national welfare.

Economists of the Bureau of Home Economics have estimated that to have a satisfactory margin of safety over minimum nutritional requirements, a family would have to be able to spend between \$120 and \$150 per person per year for food, on the basis of prices prevailing the last quarter of 1934. Since a family of four would probably need a total income above \$1,500 a year to be able to spend as much as \$135 per person for food, we may inquire how many families were below that level.

Looking back to 1929 we find that of the 22 million nonfarm families in the United States 7½ million families had less than \$1,500 a year to live on. Food prices in 1929 were 35 per cent higher than they were in the last quarter of 1934. On \$1,500 a year these families presumably could not buy enough food to provide a satisfactory margin of safety above minimum bodily requirements, unless they sacrificed in an unusual degree in what they spent for other necessities. One-third of all nonfarm families had less income than they needed to buy the diet they need; and that was in the prosperity year of 1929.

Obviously this is a broad approximation based upon what we can find out about how people spend their money, how much food they get, and how many families there are at different levels of income. But the exact figure is not the point; the point is that there were large numbers of people in 1929 who did not have sufficient income to buy the food they needed.

Is the solution of this grave problem to beat down present food prices, or is it to build up employment and income so that consumers have enough money with which to buy the food they need? That is the real heart of the problem.

Solution to this problem, intelligent consumers will realize, cannot be found in requiring farmers to sell their products so cheaply that every one, regardless of income, may buy all the food he needs. Food prices were lower in 1932 than at any time since the war. Even so, millions of people had to go without adequate diet because they lacked sufficient income. Prices received by farmers in that year were even more drastically reduced and farmers were not able to support themselves on what they were then receiving.

The burden of meeting this problem cannot be placed on the shoulders of agriculture without destroying agriculture itself. No real solution can be found until industry increases its output back to and well above the levels of more normal years and puts the unemployed back to work at useful production. At present agriculture waits upon industry for the upturn in this direction.

Producing or planning to produce enough to meet at least the normal consumption requirements of the past, farmers cannot produce all that we actually need until industry puts more income into the hands of the unemployed and the undernourished. In 1932 the physical output of the products of industry was 40 per cent less than the average output of the 7 years 1923-29. In the same year the physical output of farm products was *higher* than the 1923-29 average by a fraction of 1 per cent. Farmers were still producing not only the usual amounts for domestic consumption but in addition were continuing to produce for foreign markets that were no longer open to them. In 1935, a year still affected in considerable degree by the drought of 1934, the physical volume of farm output was about 90 per cent of the 7-year average, and the physical output of industrial products about 85 per cent of that average.

On the assumption that what we all want is the largest output we can produce and get consumed without unnecessary waste of our natural resources, a far more significant understanding of the present state of farm and industrial output, measured in physical terms, is to be had by comparing each of them with the maximum output of recent years. Industrial output reached its peak in 1929; agricultural output in 1931. Estimates for 1935 show that industrial output was 24 per cent below 1929, and agricultural output about 17 per cent below its 1931 figure.

By this comparison it can be seen that industry has curtailed more than agriculture, although the necessity of reducing output because of the restriction of export markets fell much more heavily upon agriculture than upon industry.

No economic group, no economic interest, and no industry can function independently of other economic groups and interests. No one of them can actually promote its welfare by acting as though it performed its functions in isolation, although for the most part that is the way they usually set about to do it. They are like depositors in a shaky bank who, having no way of acting together to carry the institution through its difficulties, rush to protect themselves by withdrawing their deposits, thereby destroying the bank and losing their money. Single concerns within an industry and single industries within the entire industrial field, not having discovered a road to coordinated efforts for increased production, adopt the isolated policies of self-protection which necessarily lead them to restricted production.

Agriculture stands ready to go forward with increased production of industrial and agricultural products when industrial production increases. It is ready to do its part in that balanced increase in farm and factory output by which the standard of living of the entire population can be enormously improved without destroying any element in the population that contributes its share.

The farming industry cannot solve the problem of unemployment and underconsumption. It cannot, without destroying itself, put food on the market at prices so low that even the destitute can get the diet they need. But agriculture right now is helping to make possible a national effort to bring about increased output of *all* goods and services by continuing to produce and to make available for domestic consumption at least that quantity of foodstuffs which past experience has shown to be the normal per capita consumption in this country.

These normal per capita food requirements are only what the history of recent years has shown that we *do* consume. They are not the food supply which we *could* consume and which we *should* be able to consume if we are to continue to use the word prosperity in our economic vocabulary. Studies of the Bureau of Home Economics indicate that if those 7½ million nonfarm families, which in 1929 could not spend enough to meet minimum food requirements with a margin of safety, could now have enough income to make such expenditure possible, very substantial increases in the demand for agricultural products would result. Output of fresh fruits and vegetables, excluding potatoes, could be increased by more than 40 per cent to meet such an enlarged demand; eggs and butter would increase almost as much; one-third more milk would be required than is now consumed; and the consumption of meat would increase by about 20 per cent.

Increased agricultural output to meet these larger demands will undoubtedly result if industry can adopt abundance as its goal. All economic interests have a stake in finding the balanced relationships that will bring that about. The con-

sumer interest has a most vital concern in it. And the consumer interest, like all these others, will not find its objective if it works in a vacuum.

Consumers, however much they may feel to the contrary, are not concerned solely with getting lower prices. Their chief concern should be for increased quantities of both farm and factory products at prices which the consumer can afford to pay.

Consumers' best interests will be served when consumers concentrate upon increased production as their major goal. Other interests share this goal, but it is peculiarly the consumer's. Other economic groups are confronted with difficulties which prevent them from consistently working toward this end, to the exclusion of all other goals. Business considerations, they are called, questions that turn upon the rate of profit, the rate of return on investment, the wage rate, selling prices per pound or per ton, direct and overhead costs per unit of output. These are real questions, and it is the part of business, financial, and labor leaders to answer them. But it is the part of the consumer to demand that these questions be answered on the side of *more*, not *less*, that restriction of output be not invariably the solution dictated by business expediency.

If the consumer interest does not voice this demand, no other will. It will be displaced again and again by the pressure of more immediate practical problems. In the consumer economy, physical units of output are the end in view, prices are the means to that end.

Farmers are ready to meet the consumer demand for greater output. They will respond with that greater quantity of foodstuffs which we need and have needed when industry, expanding through increased output the income of city consumers beyond the inadequate normal of past years, makes it possible for consumers to pay farmers to expand their production.

WHO GETS YOUR FOOD MONEY?

When you hand your money over the counter to your grocer, butcher, dairyman, how much of it goes back to the farmers who produced the raw materials? How much of it goes to processors and distributors? . . . A new study of 10 important foods, made by the Bureau of Agricultural Economics, shows how your money divides up.

Billions of dollars every year are paid by consumers to have the foods they need prepared and brought within their reach. For years these costs have come to more than the cost of raw materials going into foods. At the pit of the depression in 1932 they absorbed in the case of 10 foods almost twice as much of consumers' food dollars as the cost of raw materials.

Fortunes of both consumers and farmers are involved in the size of this bill. Both have an interest in seeing that foods are processed and marketed efficiently and economically. That means better prices can be paid to farmers for the raw materials, lower prices can be charged consumers. Either one or both of these advantageous results can happen.

Reason enough for finding out who gets your food money lies just there. But before we can test the efficiency of our marketing system we have to know just how much it does cost. That is what the new study made by the Bureau of Agricultural Economics does for 10 foods. While their report does not show how to overcome any inefficiencies or how to lower charges, it does give a general picture of the facts.

Assume for the moment a market basket containing a month's supply of these 10 important foods for a typical workingman's family. Into this basket would go 12.1 pounds of pork, 14.8 pounds of beef, 2 pounds of hens, 5.1 dozen eggs, 39.8 quarts of milk, 5.1 pounds of butter, 1.2 pounds of cheese, 58.8 pounds of potatoes, 21.7 pounds of flour, and 32.9 pounds of bread. Assume, too, that the same foods in the same amount have gone into that market basket even since before the war; that the foods were purchased each month at average city prices; that farmers received for the raw materials in those foods average country prices. Now let's see what has happened to the cost of the market basket and the costs of processing and distributing the foods going into it.

Back in the years before the war, 1910 to 1914, you could buy this quantity of food for \$16.30. Farmers received an average of \$9.18 for the raw materials.

The balance, \$7.12, went to processors and distributors. In other words, their share in each consumer-dollar was 43.7 cents and the farmers' share was 63 cents.

Coming 5 years closer, the cost to consumers from 1915 to 1920 was considerably greater. So was the cost of preparing and marketing the foods. But returns to farmers made a larger relative gain, with the result that their share in a consumer's food-dollar jumped to 61.5 cents. Conversely, processors' and distributors' share shrank to 38.5 cents of each dollar.

Depression came in 1921 and 1922 to pull down both prices to consumers and prices to farmers. The same thing happened then that happened 10 years later. When prices generally are falling, it is much easier to press down on farmers' prices than to cut down on the costs between the farm and the city market. Farmers not only receive less money, but they receive a smaller part of each consumer-dollar. On the other side, processing and distributing may cost less but, because these costs do not shrink as much as farm prices, processors and distributors may increase their share of the total food bill.

Times picked up after 1922. From then until 1929 food prices edged up hill again though they never got as high as in 1920. By 1929 the cost of this market basket stood at \$27.13. Of this, farmers received \$13.59 — practically 50 cents on the dollar. When depression — this time a much more serious one — overtook us, the cost of getting these 10 foods from farmers to consumers was just about half of every dollar which consumers spent for them.

Mark what happened to these dollars and shares during depression years. Prices of all kinds started tumbling. Down came retail food prices. Down came farmers' prices. Stuck in between these two, costs of processing and marketing held their own for a year, then they took to the toboggan, but the difference was that their slide was not as steep as that of farm prices.

Bottom for farm prices came in 1932. That year farmers received only \$6.04 of the \$17.30 consumers paid for these 10 foods. Never in the 22 years before had payment to farmers been so small, never had they shared so little in the money, consumers spent for these foods. From 50 cents of each dollar in 1929, farmers' share dropped to 34.9 cents.

Costs of processing and marketing, difficult to cut, yielding little to the pressure of shrunken consumer incomes, absorbed 65.1 cents of consumers' dollars for these foods in 1932 — more than in any year previous.

Two alternatives lay ahead of any one attempting to rescue farmers from these rock-bottom prices, from incomes so low that they could not afford to buy city products. Because they could not buy, city workers lost jobs and were forced on low wages.

Both alternatives involved increasing farmers' share in consumers' food-dollars. One method would be to increase farm prices faster than retail prices were increased. The other method would be to decrease the cost of processing and distributing without further decreasing farm prices. To bring farmers back into city markets so that they could buy more city goods, it was not enough simply to raise farm prices. Farmers had to win a larger share of consumers' dollars. On the other hand, to cut down on processing and distributing costs by slashing workers' wages still further obviously would make it even harder for workers to buy farmers' produce.

First of the two alternatives became the major part of agriculture's recovery program in 1933. Farm prices were to be moved up gradually. Processors and distributors were asked not to take advantage of these rising prices by pyramiding processing taxes or increased labor and raw material costs.

Most of 2 years have passed since this program got under way. During those 2 years drought came to speed up much faster the increase in farm prices. Here is the record:

Our market-basket with its month's supply of 10 foods for a typical working-man's family cost in February, 1933, \$15.42. In February, 1935, it cost \$21.41. Out of that \$15.42 paid by consumers 2 years ago farmers received \$5.00. Out of the \$21.41, in this February farmers received \$9.77 — not including benefit payments.

In 2 years consumers' cost increased 38 per cent but that increase made possible an advance of 95 per cent in farmers' returns. What is more, from only 32.4 cents out of each dollar spent by consumers for these foods 2 years ago, farmers' share was raised to 45.6 cents in February, 1935.

Equally important is what happened to processing and marketing costs. Had these costs advanced at the rate of raw material costs, farmers would have been just as badly off as when their prices were much lower. But that has not happened. Two years ago these costs totaled \$10.42. In February, 1935, they totaled \$11.64, an increase of only 12 per cent.

Actual increases in these marketing costs were even less than the apparent \$1.22 increase because this figure includes processing taxes. Since July, 1933, a tax of about 30 cents a bushel has been collected from the flour miller. Starting in November, 1933, another processing tax has been collected from pork packers. Since March, 1934, these two processing taxes account for 83 cents of the distributors' margin on the amount of food in this typical monthly market basket. Strictly, these 83 cents are not part of consumers' payment to middlemen because they go back to farmers later in the form of benefit payments.

Deducting, then, processing taxes from this margin, costs of processing and distributing have advanced only 39 cents in the two years. This small increase in middlemen's charges is evidence that processing taxes are not being used unfairly to advance food costs to consumers. Higher labor costs might easily explain this small addition.

Long-time changes in the spread between farm and city prices can come about in two ways. One is by changes in costs. Another is by changes in efficiency. Profits along the line, of course, affect the spread, too.

How important labor costs figure in total costs hasn't been measured yet. But past record shows that high wages and good returns to farmers are not inconsistent, even though these wages appear to increase the margin. At the same time they raise the demand for farm products. That was shown in the 1922-29 period.

Other costs — costs of special preparation of foods, of packaging, of research and sales promotion, of handling in distribution, of credit, etc. — must be measured against demand and consumers' ability to pay for them before any conclusions can be reached on the efficiency of all these services which processors and distributors offer to food consumers.

Marketing agreements provide some of the food trades with an opportunity to examine into current charges for these services and to scale down wastes. But only a beginning has been made toward achieving the same efficiency in distributing goods as industries have already achieved in producing them. Consumers' chance of low food costs and farmers' chance of a fair share both depend in the long run on attaining a greater economy in distribution.

WHAT IS THE FARMERS' SHARE?

Consumers and farmers who want to know what comes between the prices the former pay and the latter receive will do well to watch for an important report which is going to come in a few months from the Federal Trade Commission.

This Government agency was given a big job by Congress and told to turn in a complete report not later than July 1 of 1936. The job was assigned in August, 1935, in Public Resolution No. 61. Assurance of funds to do the job was not forthcoming until January of this year. In the short time and with the limited funds — only \$150,000 — available to the Commission, obviously only a beginning can be made. But even the partial answers to the questions which Congress posed to the Commission will have significance to consumers and farmers who are concerned about costs of processing and distributing farm products.

Tell us, Congress said in effect, how changes in agricultural income in recent years compare with changes in the income of principal corporations handling and preparing farm products for market, and where consumers' dollars, which are spent for major farm products, go.

Report to us, Congress continued, on the financial position of these principal corporations, their history, their investment, costs, and profits; on the extent of control and monopoly between farmers and consumers of the major farm products.

Describe, too — the Commission was instructed — the importance of co-operatives in processing, warehousing, and marketing of major farm products and the effects of such co-operative agencies on farmers and consumers. What are other countries doing, through co-operatives or through their governments, to cheapen costs for the protection of farmers and consumers?

Finally, Congress asked, what are your recommendations, based on your researches, for improving the economic position of farmers and consumers?

Complete answers to such sweeping questions as these can come only after intensive study. The Federal Trade Commission has a long and honorable history as a prober into and untangler of difficult economic problems. It can be counted on to set about its task fairly and thoroughly, limited only by the facilities at its disposal for doing the job.

Limits impose limits, and the first which the Commission had to set on itself was the number of agricultural commodities which it would attempt to cover. Agricultural income comes from many sources and from the sale of many different products, but among all products are six generally processed before they reach consumers which loom largest in farmers' income. These six are milk, cotton, cattle, and calves, hogs, wheat, and tobacco. In 1934 about 60 per cent of farmers' cash income came from the sale of these six products, each of which yielded a cash income of over \$200,000,000.

Many hands handle these commodities between the farmers and consumers. In the case of wheat, for instance, first there are country and terminal elevators. Then come flour millers. Flour distributors follow. Bakers and retailers of bread and flour are important factors in this flow of wheat from farms to kitchens. Other farm products move through different hands.

To obtain financial reports on all such handlers was clearly impossible; nor was it called for by Congress which stipulated only "principal corporations." Before the Commission could obtain the necessary information from such corporations it had to select those which were important and representative of the various food industries. The general rule for selection, with a number of exceptions, was on the basis of reported assets of processing and distributing companies.

Two "schedules," or questionnaires, were then prepared and mailed to these principal companies. In the first the companies were asked to report to the Commission for 1934 or 1935 the source from or through which they bought their raw materials, such as wheat, cotton, etc., and the sources to and through which they sold their manufactured products, such as flour, cotton goods, etc.

Second schedule asked processors to tell all about their financial operations: Their investment, costs, profits, change in income; the share of the consumers' dollar going to them; salaries and other returns of officers of such companies; the extent to which these principal companies control the business of processing and distributing the six farm products. These facts are sought, in some instances, for each year since 1913, in others, since 1927.

Other inquiries are being made at the same time into the operations of co-operatives.

Economic wisdom, as much for all of us as for each of us, starts with answers to such questions as these which Congress has put to the Federal Trade Commission.

Individual businesses in the past 20 years have learned how to improve tremendously their efficiency in production and distribution. Only the barest beginning has been made on the problem of the sum total of our costs of production and distribution, and yet to the Nation an understanding of them is as important in building up an adequate living standard for every one as a shoemaker's knowledge of a cheaper way to make shoes is in building up his income.

Farmers have been troubled about these costs, perhaps, more than any other group in the country. In depression years they have found that costs between them and consumers usually shrink proportionally less than do prices they receive for the raw materials of many products. On 10 food products alone, they found that their share of each consumer dollar which was 50 cents in the "prosperous" 20's fell off to only 35 cents in the depression. They saw their returns for raw materials for these 10 foods drop 56 per cent in 3 years, while costs of processing and distributing fell off only 17 per cent.

What might be done to shrink these middle costs so that consumers can buy at lower prices and therefore buy more, or farmers can receive a larger share of each consumer dollar spent for farm products? How much waste do these costs represent? How much, if at all, are they responsible for aggravating depressions and slowing up recovery?

Partial answers to these questions are already available. The report of the

Federal Trade Commission is expected to add to these answers and so sharpen our ability to solve the problem of building a better standard of living for every one.

FACTS FOR FOOD FADDISTS

Poor diets are poor, says the Bureau of Home Economics, not because of what they include but because of what they lack.

Acid fruits and milk, taken separately or mixed, at the same meal should be no bugaboo. What if the fruits do curdle the milk? Gastric juices in the process of digesting will curdle the milk anyway. The combination of fruit and milk makes a better curd, more easily digested.

Roughage, all that you normally need, can be had from eating fresh fruits and vegetables without resorting to special preparations. Too much roughage irritates the sensitive lining of the digestive tract. If you have doubts as to how much you need, consult your doctor.

Food is not poisoned by being left in opened tin cans. It must be properly refrigerated just like any other cooked food.

Raisins contain iron, good for the blood, but weight for weight they contain less than does fresh spinach or meat.

No one food, — not even milk, which comes nearest to being an all-round food — provides all the essentials you need. Each food does its best work when others are present, not necessarily at the same meal, but in the same 24 hours.

Aluminum that may dissolve in minute amounts when you are cooking food in aluminum vessels won't hurt you. Tomatoes may brighten aluminum, spinach left standing in aluminum may darken it, but neither food is damaged in any way, except aesthetically.

Ice cream and sea food eaten at the same meal should not produce uncomfortable results, provided the foods themselves are fresh and in good condition. Fish, a protein food, combines well with milk and in many ways.

Protein and starches at the same meal are not "incompatibles." The digestive system is equipped to take care of both kinds of food material. Why give it a harder task by making it concentrate on starch at one time and protein at another time? Following this fad would mean cutting out most vegetables, for they contain both starch and protein.

The celery-and-fish-for-"brainworkers" fad still lingers on. Sedentary workers, whatever the strain on their cerebral cells, need fewer calories, not special foods. Weight for weight, celery and fish have fewer calories than some foods, more than others. Watch your total calory count, not just the amount in each food.

Vegetarians may have psychological reasons for cutting out meat, but average healthy individuals need protein, and it takes skill to provide this if you limit your sources to eggs, cheese, and vegetables. If you don't watch the balance you may go too heavily on starches.

Antifad claims that blacken the nutritional reputation of certain foods may be grossly misleading. Average individuals grow fat or thin according to the total number of calories they eat a day. The one rule for reducing is to cut down on the calories but include enough of all the food essentials.

WHAT IS BEHIND HIGH MEAT PRICES

Probably more money is spent by workingmen's families for meat than for any other food. So when something happens to pull meat prices up or down, to make meat relatively cheap or relatively expensive, as compared with other foods, meat becomes a headliner.

Back in 1929 consumers paid more for meat than at any time on record. Supplies were not large and consumers' incomes were greater than ever before. Sirloin steak sold at an average of 51 cents a pound; pork chops, close to 38 cents a pound; leg of lamb, 41 cents.

Then came the depression. Meat prices broke, partly because of increased supplies and partly because of the general decline in consumer incomes. They tumbled farther than prices of most other foods. From June, 1929, to June, 1933, meat prices fell 46 per cent, while the average of all foods dropped 37 per cent.

Many families with small food budgets, who considered any but the cheapest cuts of meat beyond their reach in 1929, found in 1933 that meat had become quite moderate in price in comparison with other foods.

Since the beginning of 1935, however, meat has been relatively as well as absolutely more expensive than in 1933. From March, 1933, to September, 1935, its cost increased 71 per cent against an average advance of 46 per cent in all foods. Now meat prices are closer to their 1929 level than is the average of all foods.

Not only the amount of the price increase but its suddenness has been a jar to many food budgets. Almost three-quarters of the increase from the lows of 1933 came in the first 6 months of 1935. The going-up has been more abrupt than was the coming-down.

Furthermore, the increase has been relatively greater in the case of the once cheaper cuts. Salt pork, for instance, has practically doubled in price in the past 18 months.

No one can disentangle and appraise precisely all of the causes of price increases and decreases. But when a major change like this recent one in meat comes along, there is usually one outstanding push with many other contributing pressures.

Most significant of all the factors contributing to present higher prices is this: There is not as much meat to go around as there was last year, nor as there was in the average of the last 10 years.

Imagine the population of a country of some 175 million being reduced by 27 million in a year. That is what happened to the livestock population in 1934. For every 100 meat animals on farms in 1934 there were only 84 at the beginning of 1935. Biggest reduction was in numbers of hogs. No depopulation of this size can happen without repercussions.

Animal population does not stay as steady as human population. It goes in cycles from high to low and back again. Many factors influence that swing up and down. Usually, however, the decrease and increase happen gradually.

In five of the last 10 years we had fewer cattle on farms than we have this year. In 1928 there were 4 million less than in 1935. But at no time has the drop been as great from 1 year to the next as it was from 1934 to 1935. Numbers of hogs on farms move up and down, too, though the intervals between peaks is shorter than in the case of beef. Not for 50 years has the number of hogs been as low as it is today. The nearest approach to the decrease of 20 million which occurred between 1934 and 1935 happened just 10 years ago when the number fell off 11 million.

Obviously with fewer animals on the farm there is bound to be less meat available for consumers. Because of the special circumstances that caused this decrease there are not only fewer animals but those marketed are lighter in weight.

During the decade 1924 to 1933 which takes in "prosperity," and depression years and stops short of the time when A.A.A. and other recovery programs and the drought had their greatest effect on meat supplies, these were the average amounts of meat from federally inspected slaughter which each person would have consumed in a year if every one had received an equal amount.

	Pounds per Person
Beef and veal	42.2
Pork and lard	57.7
Lamb and mutton	4.7

In 1934 these per capita amounts were changed somewhat, due to causes we shall come to later, to: 44 pounds of beef and veal; 52.5 pounds of pork and lard; 4.9 pounds of lamb and mutton.

At the turn into 1935 consumers began to feel the effects of the reduced numbers and weights of animals on farms. In normal years there would be available in the first 4 months of the year an average of 13.4 pounds of federally inspected beef and veal per person. Last year there were 14.7 pounds. This year supplies during the first 4 months came to 12.9 pounds per person, or half a pound per capita below the average.

Supplies of pork and lard were reduced even more. Against the regular 4-month run of 18½ pounds per person, and last year's supply of 18 pounds, supplies in the first 4 months of this year were down to 13 pounds, or 5½ pounds per capita below average. That there was in the same period one-tenth of a pound more of lamb and mutton than last year, or the average year, could not possibly make up for the deficiencies totaling 7 pounds in the other meats.

Current reduction in meat supplies was caused principally by the small feed

crop of 1934. Meat supplies depend first of all upon the quantity and cheapness of grains and roughages. When the harvest of feed in any season is small — as was the case last year — the supply of livestock is certain to be smaller during the following year. As soon as it is apparent that the feed harvest will be small, the prices of feed crops rise and farmers begin selling their market livestock at lighter weights. They also curtail breeding operations so that the next crop of pigs, calves, and lambs is smaller.

Taken altogether, supplies of feed grains from the 1934 crop year were only about 60 per cent of the average for the 5 years, 1928–32. Hay and pasture also were very short. Hence, the sharp reduction in livestock numbers. The 1934 reduction in feed production was particularly sharp in the case of corn. Last year's crop was only 1,380 million bushels as compared with the 1928–32 average of approximately 2,600 million bushels. This had an especially marked effect on hog supplies. In the United States hogs depend heavily upon corn for feed, normally consuming about one-half of the total annual corn crop.

Now then, what caused the sharp reduction in feed supplies? Most of the reduction that actually resulted was caused by the drought. At the beginning of the year signers of the corn-hog contract planned to hold out of regular feed production something like 13 million acres of corn land. That is, plantings of corn were to be held about 13 million acres below the 1932–33 average, partly to help raise the price of corn and partly to compensate for the adjustment that was being planned simultaneously in hog farrowings to offset the export losses. Approximately normal yields per acre were expected and it was estimated that an area of between 90 and 95 million acres in corn would produce at least 2,250 million bushels, that is, plenty of corn to meet all needs.

By the middle of 1934, however, when it had become evident that the continued dry weather would greatly reduce acre yields, the Adjustment Administration authorized signers of all adjustment contracts, including corn-hog contracts, to utilize for emergency feed purposes all of the 36½ million acres which previously had been set aside for restricted use. The emergency production which then followed on these acres amounted to about as much feed as would have been provided by the corn which might have been raised under drought conditions on the contracted corn acreage.

In the case of hogs, as in the case of corn, the reduction planned under the corn-hog program at the beginning of 1934 was surpassed later in the season by the imperative drought adjustments. The primary effect of the corn-hog program was to cause a moderate reduction in the 1934 spring farrowings that otherwise might not have taken place. The program apparently did not cause any material reduction in the 1934 fall farrowing that might not have taken place otherwise, in view of the feed shortage.

The reduction in 1934 spring pig farrowings, attributable to the corn-hog program, turned out to be advantageous in two ways. First, it helped make an adjustment in advance of the drought large enough to obviate the necessity of an emergency slaughter program such as took place in cattle. Second, it permitted carrying a large volume of feed forward to the fall and winter season when the need was very great.

Hog slaughter this summer was small but it probably would have been smaller without the advance adjustment in 1934 spring pig farrowings made under the corn-hog program.

The program was intended, of course, to reduce hog numbers by the amount formerly but no longer exported. These numbers were reduced. It was extremely fortuitous that this planned reduction of hog numbers resulted in conserving feed supplies for the severe drought period of 1934–35 and thus made available larger hog supplies for 1935 than there would otherwise have been. In other words, the planned reduction of hog numbers for one purpose turned out, by chance, to minimize the severity of the more drastic reduction which the drought would have necessitated.

The slaughter of 6 million little pigs in 1933 has no bearing on the current decline in hog slaughter. If these pigs had been fattened for sale instead of being killed at light weights for emergency use, they would have been marketed early in 1934. Pigs are marketed at an average age of 9 months. The products resulting from the

little pig program, therefore, would have been consumed long before this time. Moreover, if the little pigs had been fattened out in the fall of 1933, they would have consumed an additional 60 to 70 million bushels of corn which could be carried forward into the 1934 feeding season. About 270 million bushels in all were put in storage under the Government's corn loan program and carried into the summer and fall of 1934. This stored corn was also a fortuitous factor in easing the shortage of feed during the drought.

On cattle there was no A.A.A. reduction program. When it became apparent that drought would seriously curtail feed supplies, the A.A.A. stepped in quickly to buy up over 8 million animals and to conserve the meat for distribution to relief families. Had this purchase not been made many of these cattle would have died of thirst and starvation and the meat from them would have been lost.

Drought was not alone responsible for boosting meat costs. A gradual increase in total consumer income during the past 2 years also has been a factor tending to cause food prices to rise. This tendency is especially marked when supplies are limited.

Many consumers believe that the processing tax on hogs, which started at 50 cents a hundred pounds, live weight, in November, 1933, and since February, 1934, has amounted to \$2.25 is another cause of high meat prices. It is exceedingly difficult to estimate what the price of pork would be were the tax removed since the supply is so much reduced. Many economists, however, hold that removing or reducing the amount of the tax on hogs, with no change in supply, would not result in any significant lowering of consumer prices.

With meat supplies reduced, obviously somebody has to write out a new bill of fare. Were the job divided equally, it would mean — in pork, for example — simply this: For every 5 pounds of pork and pork products each of us consumed last year we would get around 3 pounds this year.

What actually happens, of course, is that prices increase and the increase takes care of the necessary shifts in consumption.

Capacity to meet higher meat costs depends not only on increases in income but on the relative level of other food and living costs.

Meats represent roughly 25 per cent of factory wage earners' average expenditures for food and $7\frac{1}{2}$ per cent of their average costs of living. These general proportions must be kept in mind in figuring the burden of higher meat prices.

WHEN YOU BUY U. S. GRADED BEEF

Bargains, like happy days, have a way of lingering fondly in consumers' memories. When you go to market today and find beef selling at 37 cents a pound for sirloin or 27 cents for rib roast, you probably do not have to be reminded of the days when you could get this meat for 8 to 10 cents less a pound.

You may have to be reminded, though, that for years you paid much higher prices for this meat than those charged today and probably thought little about them. The average price of a pound of sirloin, which dropped to 29 cents in 1933 was 50 cents in 1929. Plate beef, sold at an average of 10 cents in 1933, cost 21 cents in 1929. You would have to go back to 1916 to find a price for sirloin steak as cheap as 1933's, or back to 1913 to find plate beef as cheap as in 1933.

Depression gave beef-eaters bargain prices for 3 years, but as in the case of most bargains, consumers' gain was some one else's loss. Cattle farmers took the loss. Had they been asked to take it much longer, many of them would have been forced out of the business of providing us with steaks, and supplies might have been reduced — although more gradually — as the dropght reduced them quickly.

Drought came to change this picture by wiping out great quantities of grain and forcing up the cost of feeding cattle. Farmers, with large numbers of cattle suffering for feed and water, and with prices of feed rising, were forced to reduce the number they kept on the farm by marketing more cattle than they ordinarily would have marketed. Many of these cattle were underfed. Meat from them naturally would not be so fat or tender. Abundant supplies of beef on the market last fall, due to this distress marketing, kept prices to consumers down. Today fewer cattle are going to market. Less beef is available for consumers. These smaller supplies are now forcing up consumer prices.

For months the A.A.A. has bent its best efforts to relieving the problem as much

as it could, both for consumers and farmers. First, it bought from farmers over 8 million cattle. Many of these were threatened with starvation or death from lack of water. Distress sales were ruining markets for farmers outside as well as inside the drought areas. Meat from these cattle was canned into hundreds of millions of cans or distributed fresh to relief families. Second, the A.A.A. helped farmers to increase their production of feed and forage in acres held from production of surplus export crops.

Drought is wholly responsible for the lowering of quality of beef. Fortunately, this is a temporary problem. Under pressure of drought, farmers have culled out their low-grade animals. Though short in numbers, the herds that have weathered the drought are the soundest foundation stock that the beef industry ever had. Good quality beef will be more plentiful in the future.

Consumers always need some yardstick for measuring the quality of beef they buy, not only to purchase wisely but to guide them in preparing meat at home to get the greatest possible satisfaction and value from their purchases. This need is greater when prices are up than when they are down.

Government-graded beef can give you that yardstick of quality. Your butcher can and will provide U. S. graded beef if you ask for it.

Graded meat should not be any more expensive than ungraded meat of the same quality. It usually costs the wholesaler less than 4 cents to have an entire beef graded and stamped. The consumer's share of that on an average purchase would be too small to compute. Your butcher can get U. S. graded meat simply by asking his wholesaler to supply him with it.

Grading, so far as Uncle Sam is concerned, is a purely voluntary service. When a packer or dealer has a demand for U. S. graded meat he can ask to have the Government grader come to his plant and grade his meat. The charge for the grader's time is \$2 an hour. Under favorable conditions a grader can grade and stamp from 60 to 75 carcasses in an hour. That makes it cost the packer from $2\frac{1}{2}$ to $3\frac{1}{2}$ cents for each whole carcass.

Meat graders are experienced men, wise in the business even before they apply for the job. They must have had 8 years' practical work in grading, buying, and selling meat. After appointment, they are trained in the application of the official standards, and must work 3 years as assistants before then can become graders in their own right. They then receive permanent appointment in some city where they are on call 6 days a week from early until late. Their salaries are paid by the Government and they are responsible directly to the Bureau of Agricultural Economics in the Department of Agriculture.

All sorts of people call for graded meat: Wholesalers, packers, jobbers, hotels, and restaurants, dining car services, steamships, retailers, and even private individuals. After the meat is dressed and chilled, the grader looks it over, determines its grade, takes out his little roller stamp and runs it from one end of the beef to the other in several places, leaving a narrow purple ribbon which says over and over, U. S. GOOD STEER or U. S. MEDIUM COW or whatever it happens to be.

Purple ink used in the stamp is made from a perfectly harmless vegetable compound which usually disappears when the meat is cooked.

More graded meat is demanded every year. Grading started in May, 1927. That year the first graders marked $4\frac{1}{2}$ million pounds. In 1934 the little purple stamp rolled its trail of guaranteed quality over more than 263 million pounds of beef.

These are the official grades established by the Bureau of Agricultural Economics: Prime, Choice, Good, Medium and Common, Cutter, and Low Cutter. The last two grades are sold only as boneless cuts — or are used in making sausage.

"Prime" is scarce even when fat animals are plentiful. You rarely get beef of this unusually high quality. It is a clear bright red with tiny white lines of fat called marbling, running through it like veins, and is covered all over with a good layer of firm white fat. "Choice" has the same characteristics as "Prime" but is not so fat. "Good" is somewhat above the average and good enough for most of us even in the best of times. "Medium" and "Common" are not so well-fleshed as the three higher grades, but you can get excellent meat in these grades too.

"Contour of the Carcass" is one of the important points a grader looks for. Since so few of us have a chance to look at the carcass as a grader does, to see if it is "blocky and compact," let's bring it into our own field by saying that a rib roast, for instance, should be thick and full. There should be a high percentage of meat to bone.

Cutting is another point the grader notes. The knife should go through the beef smoothly and evenly. Cut surfaces should remain smooth and the texture firm.

Color is the easiest item for the amateur grader to remember. Bright red for the lean, white or pale cream for the fat.

Contour, texture, and color. Remember those when you go to the meat counter next time.

If your pocketbook says buy "Medium" or "Common," don't feel too sorry for yourself. They can be just as deliciously appetizing and nourishing as the higher grades if cooked slowly according to scientific rules. The Bureau of Home Economics has a useful bulletin on this subject called "Meat Dishes at Low Cost." You can get it by sending 5 cents to the Superintendent of Documents, Washington, D. C.

Observant consumers have probably noticed another purple stamp on the meat they buy. It is a little round purple stamp made with the same kind of ink used by the graders, which says "U.S. Insp'd & P's'd." Do not confuse it with the grade stamp. The U. S. Inspected and Passed stamp is placed on all the major portions of the beef by the U. S. Inspector from the Bureau of Animal Industry of the Department of Agriculture. It means that the animal was free from disease and that the meat is fit for human food. It has nothing to do with quality. According to the Meat Inspection Act of June 30, 1906, all meat shipped from one State to another must be marked with the inspection stamp.

WHEN YOU BUY U. S. GRADED LAMB

Meat consumers' fancies this spring can turn more than lightly to thoughts of lamb, for here is a meat selling at prices only slightly advanced over last year's. Supplies, little affected by the drought, are even larger than those of a year ago. It's a wise consumer who takes advantage of these twists in food fortune.

Time was when lamb for dinner was more of a treat than pork or beef. During the 5 years, 1924 to 1928, consumers in New York, for instance, paid an average of 38.74 cents a pound for lamb against an average of 35.79 for beef and 30.40 cents for pork. By 1933 not only had prices of all meats fallen way off, but lamb was cheaper than beef and only a little over 4 cents more expensive than pork, taking New York City prices as examples. (Almost a third of the inspected slaughter of lambs is consumed in Metropolitan New York.)

Drought-reduced feed supplies have caused a marked decrease in the production of beef and pork and especially of the better grades of beef, and this in turn has forced up prices of these meats. Increases in beef and pork prices have helped to lift up the price of lamb but only slightly. The cheapest cut of any meat reported on by the Bureau of Labor Statistics at the end of March was breast of lamb, selling at an average of 13½ cents in 51 cities. Good cooks know how to turn cheap cuts like this into nourishing and palatable dishes.

Major reason why lamb prices have clung closer to the low levels of last year is that lamb supplies so far have been larger this year than last. Lambs coming to market this winter and early spring were from the 1934 crop which was one per cent greater than the 1933 crop. Because of the drought the proportion of thin lambs last fall which went to feed lots for further finishing was larger than usual. As a result more lambs have been slaughtered since the first of the year than a year earlier. While the Government purchased some 3½ million sheep in the fall of 1934 to salvage meat for canning and distributing to relief families, it selected old ewes, very few of which would have come to market anyway. The lamb population of January 1, 1935, was within 2½ million of the 52,212,000 in existence on the same date a year earlier. None of this reduction was due to a commodity control program.

Supplies of early spring lambs which will be in your butcher shop in May and early June are expected to be relatively large and in better condition than average.

Meat bargains to consumers often mean poor prices to producers. That is what the bargain prices to consumers meant during the depression. Back in 1928 farmers received an average of \$12 per 100 pounds of live lamb. In 1932 all they got was \$1.40. That's a cut of 70 per cent — even heavier than the 60 per cent cut forced on hog farmers or the 56 per cent cut forced on cattlemen. Since this low level, livestock prices have taken a better turn. In March, 1935, farmers who had hogs to sell found their price had climbed up 108 per cent over the March, 1932, level; cattlemen received prices 54 per cent higher; increase in the farm price of lambs was 52 per cent.

If consumers match prices against the months they will find that May is the month when lamb prices to them usually begin falling off. Supplies increase from May to October and prices usually decline. In November or December prices begin climbing again as supplies sent to market decrease.

Whatever the season, consumers stand a good chance of getting a tender cut when they buy lamb because the animal is marketed while it is still quite young. Other countries consume quantities of mutton. Here mutton is seldom seen in butcher shops. Ninety per cent of the sheep raised are sold as lambs. New crop, or "spring lambs," most plentiful from May to July, are 3 to 5 months old. "Grass lambs," sold from August to December, are for the most part 5 to 8 months old. "Fed lambs," sold on local markets usually from December to May, are about 8 to 12 months old. These different kinds of lamb differ in age from each other much as the chickens you buy. A "spring lamb" is like a broiler; "grass lamb" like a fryer; "fed lamb," like a roaster.

Variations in quality occur in lamb as they do in other meats. It takes special skill to spot them. If you buy by Government standards you don't have to acquire this skill or guess at quality.

Men skilled in the business of marketing know the value of standards in quality. Grading simplifies their business. It cuts down losses. It gives them a common language that every one in the trade understands. It is the basis of profit.

Now that graded meats can be bought by consumers, guessing on quality has come to be out of date. Already graded beef has proved such an aid to consumers that 263 million pounds were marked last year. Less than 5 years ago the first consumer grading of lamb was started. In the first full year — 1931 — 1,378,000 pounds were graded. Last year 9,352,000 pounds went under the grader's purple stamp.

Meat dealers can supply you with graded lamb — if you ask for it — by ordering from a wholesaler located in one of the 16 cities where the United States Government grader is located. (When more consumers ask for U. S. graded meats this grading service can be extended to still more cities.) The cost to the wholesaler is only \$2 an hour.

Because these graders, experienced and trained men, can inspect so many carcasses an hour, the cost of grading each animal is too small to make any difference in the price consumers must pay.

Lamb grades — like beef grades — start with "Prime." Next four grades are: "Choice," "Good," "Medium," and "Common." "Prime" lamb has an abundance of the best quality flesh, particularly in the regions of the most desired cuts. All fats are firm but not brittle; inside and out, they are white or slightly creamy in color and may be tinged with pink. Cut surfaces of the lean flesh appear smooth and velvety. The flesh is light pink in color. Bones are relatively small, soft, and tinged with blood.

Prime grade cuts are prize cuts and you seldom find them on ordinary markets. Choice and Good grades are more usually found and measure up closely to the top grade. Medium and Common grades have their uses, too, and if you know how to cook them you can turn meat of these grades into many an appetizing, nutritive dish. The Bureau of Home Economics of the Department of Agriculture gives you hints on how to cook less tender cuts of lamb in its booklets: "Lamb As You Like It," and "Meat Dishes at Low Cost," each sold for 5 cents by the Superintendent of Documents, Government Printing Office, Washington, D. C.

Full description of each of the five grades of lamb is given in United States Department of Agriculture Bulletin No. 1470 on pages 15 through 20, which bulletin you can buy for 15 cents from the Superintendent of Documents, Government Printing Office, Washington, D. C.

Mark carefully the difference between the quality grade stamp and the inspection stamp you see on meat. Both are stamped in purple. All meat shipped from one State to another must be "U. S. Inspected and Passed" to show that the animal is free from disease and that the meat is fit for human food. This stamp is a round one. Quality grades are stamped in ribbon form down the full length of the carcass. Fluid used in making both marks is harmless.

CHICKEN — WHICH BIRD TO BUY?

The proportion of edible meat of birds depends on the breed of the bird, its age, its history in such matters as feeding and care and handling and — most important — what preparation for market it has had.

Most complete table available, given herewith, can give consumers definite help if used with certain reservations. For instance, the table gives "fattened" and "unfattened" roasting chickens. Which figure a housewife uses to make her calculations, or whether she uses a figure in between the two, will depend on the degree of blocky plump perfection of the chickens her market man offers her.

*Percentage of *Edible Meat to Dressed** Weight*

<i>Bird</i>	<i>Percentage</i>
Roasting chickens (fattened)	63.07
Roasting chickens (unfattened)	56.86
Broilers (fattened)	60.73
Broilers (unfattened)	54.27
Capons (fattened)	67.46
Hens (fattened)	64.22
Ducks	60.17
Geese	65.07
Turkeys	66.53
Squab pigeons	73.94
Squab Guineas	60.25

Surer calculations are possible on turkeys, capons, ducks, and geese for at least at holiday time these birds are pretty sure to have been fattened especially for festive purposes.

Using the formula given by a consumer, we figured the actual price per pound of edible meat on each of the birds offered in a market on a recent date. Our meat man gave us one price on all roasting chickens of 35 cents a pound. According to our table, the edible meat of a fattened roaster would come to 55½ cents a pound, while the edible meat on an unfattened roaster would cost 61½ cents a pound. In the season for broilers, we would see much the same relation between cost of fattened broilers and of unfattened broilers. Capon costs 45 cents a pound in our market at this writing. Though it has more meat in proportion to dressed weight than any other type of chicken, the higher cost of the dressed weight brings the cost of an edible pound up to 67 cents. Hen is cheapest per pound of edible chicken meat. At 32 cents a pound dressed weight, its edible pounds would come to 50 cents apiece.

Average turkeys priced at 40 cents a pound would, according to our calculations, cost 60 cents a pound for the eating meat. A well-fleshed turkey hen will give a slightly larger proportion of edible meat than a large turkey tom, and is better suited to the average family. Ducks at 25 cents a pound figure out at only 41½ cents for a pound of edible meat. And geese at the same price provide the cheapest meat we find in our figures — 38 cents a pound.

Even with these figures, we must always take into consideration the amount it is necessary to buy of each of these birds. Even though buying a goose may give us our cheapest buy per pound of edible poultry meat still we may not be able to afford the 10 pounds of Christmas dinner meat that comes with the usual goose. The next cheapest meat — duck — may be our best bet at 41½ cents a pound of meat, since we need not buy so many pounds of it. Another thing to remember is

*Edible meat means all of the drawn bird including heart, liver, and gizzard, but with the bones removed.

**Dressed weight is of bird plucked and bled but not drawn.

that the flesh of goose contains much more fat than chicken or turkey. This goose fat turns to grease when the goose is cooked.

Not only more pounds but pounds at a higher price go with the purchase of turkey. Among toms, or male turkeys, turkey experts tell us the bigger the bird the more meat in proportion to bone. The way to get around that fact when you don't want as much as the usual turkey tom weight of from 14 to 21 pounds, is to buy a turkey hen, which weighs from 8 to 12 pounds and has slightly more meat in proportion to waste than toms have. But even a turkey hen weighs more and is more expensive per pound than duck or stewing chicken.

IS IT LEAN MEAT YOU WANT?

Suppose you have 25 cents to spend for beef and want to get the most lean meat you can for this money. Which cut should you buy?

All beef cuts include some portion of waste, some amount of fat. How much of each depends, of course, on the cut. Strip them both from whatever cut and you have left lean meat with approximately the same food value. Fat makes its separate contribution to food value, to tenderness and flavor. The more lean meat is streaked with fat, the more tender it is. Toning up the appetizing quality of lean meat from less tender cuts is a trick of cooking.

What you lose in tenderness by buying cheaper cuts you frequently gain in quantity of lean meat. Top cut in price, porterhouse, has much less lean meat per pound than have some of the cheaper pieces. You may pay — as city consumers did early in August — $3\frac{1}{2}$ cents less for a pound of round steak than you pay for a pound of sirloin, but actually you are getting lean meat in the round steak form for 12 cents less a pound than in the sirloin steak form. Fore shank will cost about 5 cents more a pound than hind shank, but it usually has about a third more lean meat than hind shank.

Below we list the approximate proportions of lean meat you ordinarily get from the better-known cuts, if prepared according to the Chicago method of cutting. If economy buying is important to you, do a little figuring next time you go to market. List the prices charged. Balance against them the amounts of lean meat you will likely get from each cut. If round steak (full cut), for instance, is selling at 35 cents a pound, and 81 per cent of a good grade steer is lean, you are really paying for the lean meat in that steak at the rate of 45 cents a pound.

Lean Meat usually comes in these proportions in each pound of a particular retail cut, if the beef is good grade steer and is cut according to the Chicago method.

	<i>Per Cent</i>		<i>Per Cent</i>
Flank steak	87	Porterhouse	60
Round steak (full cut)	81	Plate	58
Sirloin steak	70	Rump, with bone	53
Chuck roast	70	Fore shank	47
Rib roast	64	Hind shank	31

Five cuts of beef are included in the price reports of the Bureau of Labor Statistics. From bottom to top prices, ordinarily they line up like this: Plate, chuck, rib roast, round steak, sirloin. Average prices (for 51 cities) in July were: Plate, 16.2 cents a pound; chuck, 23.5 cents; rib roast, 30.1 cents; round steak, 36.5 cents; sirloin, 40.2 cents. But if you apply the proportions of lean meat listed below to these average prices, you will find the cost of the lean meat in each of these cuts is (in round numbers): Plate, 28 cents; chuck, 33 cents; round steak, 45 cents; rib roast, 47 cents; sirloin steak, 57 cents.

Top cost of lean meat on the basis of these prices, then, is sirloin. Bottom cost is plate.

No fixed rule on the specific cut you should buy in order to get the greatest amount of lean meat for your money works everywhere, since prices vary. Nevertheless, when we compared the cost of lean meat for the five cuts in Boston, New York, Detroit, Jacksonville, Chicago, St. Louis, and Los Angeles, on the basis of July prices, we found the same meats headed and ended the list. Lean meat in sirloin form was the most expensive in all these seven cities. Plate, also, was the cheapest form in which to buy lean beef in all seven cities.

Twenty-five cents will buy different amounts of lean meat depending on when and where you buy. If you were choosing from among the five cuts listed in the table and were buying at the average price for each cut as quoted by the Bureau of Labor Statistics for the country, 25 cents spent for each cut would purchase these amounts of lean meat on July 30: Sirloin, 7 ounces; rib roast, 8 ounces; round steak, 9 ounces; chuck, 12 ounces; plate beef, 14 ounces.

MEAT SPECIALTIES IN THE BUDGET

Delicacies to food connoisseurs the world over, gland and muscle tidbits that do not fit into the regular steak-chop-and-roast categories are just "edible by-products" to Department of Agriculture meat specialists. The meat trade thinks of by-products as something else again, so calls these tidbits "meat specialties." Some people call them "sundries," and others stretch the term "gland meats" to cover the whole list, which is stretching the truth.

Best known actual gland meats are liver, kidneys, and sweetbreads. Non-gland specialties are heart, brains, tripe, and tongue. The list of meat specialties does not end there. It includes other parts Americans eat only when disguised as sausage, etc. "Melts," for instance — actually the spleens of meat-animals — are a treat in many countries but seldom sold as such in America.

Food prejudices are hard to shake. Children grow up thinking that food not served in their home is unnatural for human beings to eat. Different countries take different foods for granted as part of the scheme of life. America hesitates to taste a dish that would mean a company dinner in Europe. But these prejudices are ill winds that blow good opportunities for saving to canny meal-planners. It is precisely because the demand is heavier for pork chops and sirloin steaks that we can buy some of their less popular but inevitable accompaniments at much lower prices. So thrift helps to break down the barriers of custom. More and more American homemakers are taking their cue from old-world chefs and learning how to slip extra portions of flavor variety and food value into the menu with the greatest of ease to the food budget.

Economy headliner among the most-used meat specialties are brains, tripe, heart, the liver of beef, lamb, and hog; the kidneys of beef, veal, and hog.

Nutrition headliners are liver, kidney, and brains which make special offerings of food elements beyond the "efficient protein" for which dietitians value the muscle meats. Science has not learned the whole story yet, but it has offered evidence on which to base the belief of the nutrition experts in the Department of Agriculture that if we depend entirely on muscle meats and skip these "edible by-products" we may be short-changing our bodies on many elements that we need to round out our diet.

Liver, farthest advanced of all meat specialties on the road to American popularity, is famous for its use in the treatment of pernicious anæmia. It boasts a rich supply of iron and copper for good red blood. It is an excellent source of Vitamin A which helps to ward off certain infections, make children grow, and keep up the vitality of both grown people and children; of Vitamin C the "tooth nutrition" vitamin for which doctors notably prescribe orange juice; and of Vitamin B, which has made the front pages in the fight against pellagra. Liver is a good source of Vitamin B, the vitamin that helps us avoid a sluggish, restless, irritable state, and particularly needed in the diet of mothers who have young or coming babies. Liver is also a source of Vitamin D. Recent studies of nutrition specialists in the Bureau of Home Economics show that of the four livers, beef liver is richest in Vitamin D, hog liver next, lamb third, with calf's liver at the bottom of the list.

All livers are rich in these important food values. Which is richest generally has not yet been determined by nutrition experts. Consumer preference, and with it a high price, has always gone to calf's liver, apparently because of the tradition that its flavor is more delicate than that of other liver. Consumers whose taste verifies this distinction may still make use of the low-priced livers by fitting their method of preparation to the product. Prescalding will tone down the flavor of over-strong liver. Beef liver can compete with the liver of younger meat animals when it is ground and served in such dishes as liver-and-rice loaf, liver paste sandwiches, scalloped liver and potatoes, etc. These non-calf livers are still bargains in food value, though not the free gift from the butcher that they used to be. When

beef liver first graduated from the gratis class it was priced at 25 cents for a whole liver which was quite a quarter's worth considering that a liver can weigh from 6 to 8 pounds. Then it went up to 5 cents a pound, but modern nutrition knowledge has stabilized its price at a higher level. All liver should be bright-colored and firm.

Kidney, runner-up to liver in food value, presents the same choice among types and prices. We can choose between the higher-priced lamb kidneys and the lower-priced beef, veal and hog kidneys, knowing that no matter how we budget we are sure to get a good quota of Vitamins A, B, and C, and an excellent one of Vitamin G, along with rich supplies of iron and copper. Too high flavor can be brought within range of taste by bringing kidneys to boil in successive cold waters. Hog kidneys are bean-shaped and rather flat. Lamb kidneys, the smallest of all, are more oval and plumper. Calf, smaller than beef, has the same segmented, cluster-shape. Kidneys should be a bright brownish-red color, with lamb kidney tending toward purple, and calf kidney slightly lighter than beef.

Freezing modifies the color of kidneys. Some markets with a demand for more kidneys than can be provided from their meat animals, buy them frozen and thaw them as needed. Consumers who wish to keep their purchases more than a few hours may well ask their butchers for the ones still frozen and thaw them in their own refrigerators.

Brains, next on the nutrition bargain list, are still favored more by fancy taste than by the average consumer. Excellent source of Vitamin C and a good source of Vitamin B, brains are likely to be within the range of any budget that can encompass meat at all. Firmness is the quality gage of brains, for which calf's brain ranks first with lamb's and hog's brain holding up less well. Sometimes brain is sold whole, sometimes divided into lobes and sold by the "pair," or "set," sometimes by the container-full, and sometimes by the pound. Consumers who buy by the pound can best judge their money's worth.

Tripe, acquired taste for most Americans, is being acquired by more people here every year. Three decades ago so few people wanted to eat tripe that it was seldom offered for sale in the meat markets, but nowadays practically all tripe is sold over the counter in its original form. The muscular portion of the first and second of the four stomachs of cattle provides tripe. From one of them comes plain tripe and from the other honeycomb tripe, the basis for Philadelphia pepper pot soup, which is most favored by consumers, but not yet sufficiently to take it out of the bargain class. Much of the tripe you buy in the market has already been precooked.

Heart, though often mentioned as a gland meat, is very actively a muscle meat with only the food value of that class. Beef heart, less expensive than calf's heart, requires more tenderizing methods of cooking. Lamb's heart, a choice item on the specialty list, is the smallest member of the heart family. Pork heart is coarser fibered and at the same time softer and a lighter color than the others, which should be a bright dark red color. All heart should be firm and full, and the more fat surrounding it the better.

Tongue, while not at the bottom of the price scale of meat specialties is near the top of the palate scale. Because fresh tongue is very perishable, the bulk of lamb, pork, and veal tongues are marketed pickled and packed in jars. Beef tongue, more commonly smoked than fresh, for the same reason, can come from either cows or steers. Better texture and less waste go with the short bulky tongue of the steer. See that the fat and glandular tissue at the root of the tongue has been well trimmed away for this reduces the waste to such an extent that tongue may compare favorably in cost with other meat delicacies.

Sweetbreads, epicurean rather than economical meat specialty, still compare favorably with a regular quality cut of meat because they are all food and no waste. Figure against the fact the slight shrinkage that takes place in cooking, and the cost of the frequently expensive ingredients in the recipe by which you prepare the sweetbreads. Technically either the thymus gland of the calf or lamb, or the pancreas gland of the hog, the veal thymus sweetbread is the one the cookbooks honor with their quite considerable attention. When you buy sweetbreads by the "pair," you mean the two parts of the gland connected by membranous tissue. The round, compact "heart" half is preferred to the other part called the "throat"

sweetbread. If you buy your pair already separated, make sure you get your share of the heart halves. Since sweetbreads, like all these meat specialties, spoil quickly, they should come out of their wrapping as soon as they come home, and go into the refrigerator.

By-products though they are officially labeled, meat specialties can hold their own with sirloin steak on counts of sanitation and care in handling. They are subject to the same inspection laws which require that Federal inspectors pass every piece of meat produced by every packing plant that sells in interstate commerce. No grade stamps as a rule, however, go on these meat specialties to guide consumers.

Recipes are important in cooking most meat specialties. Since they are delicacies, they call for delicate treatment. Some helps for using the less expensive ones as well as for lower-priced regular cuts of meat are given by the Bureau of Home Economics in a valuable collection of recipes called "Meat Dishes at Low Cost." Five cents buys the leaflet from the Superintendent of Documents, Washington.

WHAT KIND OF MILK DO YOU BUY?

To ask a food manufacturer to grade his product so you can know the quality of what you buy and then, when you buy, to ignore what those grades mean is about as foolish as building a bridge across a stream and then wading across.

Graded milk has been offered to consumers for more years than has any other graded food. But make a quick check of your neighbors sometime to see how many of them know what the different grades on sale in your city mean. Perhaps you will find you yourself don't know!

Most cities and towns throughout the country have some kind of milk ordinance requiring the grading of fresh milk sold within their limits. Not all ordinances have the same standards. Grade A milk in one city may be quite different from Grade A milk in another city.

Many kinds of standards, differing among cities, led the United States Public Health Service 10 years ago to draw up a uniform milk ordinance which any city could adopt. This ordinance, prepared with the counsel of widely known health authorities and representatives of the milk industry, and approved by the Bureau of Dairy Industry, has been adopted by nearly 600 municipalities.

First rule in careful buying of milk is to find out what your local milk regulations are. Your city health department will tell you. Compare the requirements of its milk ordinance with the provisions of the Public Health Service ordinance. Does your city ordinance require Grade A pasteurized and other grades of milk to satisfy all of the requirements demanded by the uniform ordinance?

Suppose for the moment that milk is graded in your city according to the P. H. S. uniform standards. What does Grade A pasteurized milk mean? It means that the milk has been carefully produced and properly pasteurized and is as safe as *any milk* can be made. Grade A raw and certified milks are raw milk which are as safe as *any raw milk* can practically be made.

Note carefully that this grade is a mark of purity, not of richness or nutritive value except that all whole milk — whether graded "A" or below it — must contain at least $3\frac{1}{4}$ per cent butterfat content. Richness of milk is measured by its butterfat content. Purity of milk is determined by the degree of sanitation under which it is produced (cleanliness, sterilization of cans and bottles, tuberculin testing, etc.)

Few milk ordinances in effect in cities today grade milk on the basis of its butterfat content. Many of them may require, as in the uniform milk ordinance, that any whole milk sold shall contain a certain percentage of butterfat, but make no requirement at all about the butterfat content of each sanitary grade. When you are offered Grade A or Grade B milk there may be no difference in the richness of the two kinds, while there is a difference in their purity.

Exception to this rule may be occurring in your city. While the law may not require it, milk companies may offer you different quality grades. For instance, you may find two kinds of milk, both meeting the *sanitary* requirements of Grade A, but one containing 4 per cent butterfat and the other $3\frac{1}{4}$ per cent.

Major differences in cost come in with differences in richness of milk. Consumers who want milk with a higher-than-average butterfat content must expect

to pay for it because it costs more to produce such milk. To make sure you are getting that extra richness, ask for a report from your dairies. They might like the idea of printing on their labels "Grade A, not less than 4 per cent butterfat," or whatever the percentage is. Other consumers whom you know might like to have this additional guide to the quality of milk they buy.

Some slight difference in price may be due to the cost of preparing the various sanitary grades. But Public Health Service officers report that so far as the sanitary requirements of their uniform ordinance go, in most cases the cost of turning out Grade A is less than 1 cent higher than the cost of turning out a lower grade. Your local sanitary requirements may add to this cost. For instance, if Grade A milk in your city must have a double cap, that will add to the cost.

Grade A pasteurized milk, under the Public Health Service ordinance, is meant to be a milk that is safe and good enough for everybody. It is not intended to be a luxury product. By setting an "A" standard, the Service hoped to encourage bringing all milk up to this quality grade. But suppose a family cannot buy enough milk at Grade A prices to give each child a quart a day. What should they do?

Boiling milk will give you the protection you need against infection from any grade of milk lower than the P. H. S.'s "A" standard, whether the milk is raw or pasteurized. Boiling kills practically all the bacteria without destroying the food value of the milk, except for a very small amount of Vitamin C. This vitamin is affected by heat, but this fact is not important because the amount of Vitamin C present, even in raw milk, is frequently insufficient. It is necessary to feed children orange or tomato juice or some other good source of this vitamin, regardless of whether the milk they drink is raw, boiled or pasteurized. Boiling does not rob milk of any of its food value, and it does something to make milk more digestible. None of the reasons people give for not using boiled milk are actually valid, except of course the change in taste.

Cheaper grades of raw or pasteurized milk, often just as high in nutritive value as the most expensive grades, may be used in cooking, too, if your food money is scarce.

One other high grade beside "A" is defined in the uniform ordinance of the Public Health Service. That is "certified" milk, which is raw milk carefully produced with constant supervision. This is an expensive kind to produce, and consumers must expect to pay more for it than for the pasteurized kind. Certified milk need be bought only when the doctor orders it or when consumers can indulge their preference for raw milk of the very highest grade. Proper pasteurization does not significantly affect the flavor of food value of milk, and from the standpoint of health, properly pasteurized milk is safer than raw milk. Consumers who prefer to purchase raw milk can secure added protection by pasteurizing at home as follows: Place the milk in an aluminum vessel on a hot flame and heat to 155° F., stirring constantly; then immediately set the vessel in cold water and continue stirring until cool.

"Fancy" labels, such as "Sanitary" or "Special," on higher-priced milk should be compared with the standard "A." Careful consumers will ask for a clear guarantee of extra quality of richness and for sanitation before they spend extra money on fancy names.

Vitamin D milk is a possible exception to that rule. This new product is still in the experimental stage. Experts are not yet agreed that people past the age of rickets need any more Vitamin D than they get from a good balanced diet. Vitamin D milk is recommended by many experts for babies, but as to whether mothers can depend on milk to give their babies the extra Vitamin D they need in their first 2 years, the only official pronouncement so far is that more research is desirable.

Learning the definitions and uses of different grades of fresh milk is only the first rule for intelligent consuming. Equally important is checking on the enforcement of those standards. Health departments in some cities with excellent milk ordinances are handicapped by lack of funds for hiring inspectors. Find out how many inspectors your department has; how often they make surprise inspections in the dairies; whether results of these inspections are available to the public. In Washington, for instance, every month the health department publishes re-

ports of inspections made at each dairy and ice cream plant. All consumers who want them may receive these reports free. That's one way to keep posted on grades of milk sold.

Another check on standards in your city is to determine its milk sanitation rating. This service is given by an increasing number of State health departments. To get a rating a city must apply to its State department. If the rating comes to 90 per cent or over, the city is listed in the semiannual publication of the Public Health Service, "Milk Sanitation Ratings of Cities." A rating of 90 per cent or over means that the city is doing excellent milk-control work.

Choosing the economical type of milk for your purposes need not stop with fresh milk. Other forms can be included in the diet, maybe in some cases more economically. The Bureau of Home Economics gives these alternative forms as approximately equivalent to the food value of a quart of fluid whole milk; 17 ounces of evaporated milk; 1 quart of fluid skim milk and 1½ ounces of butter; 5 ounces of American Cheddar cheese; 1½ ounces of butter.

Centuries of skimming cream from milk has given lots of consumers the false idea that cream is the only thing valuable in milk. When butter fat is removed from whole milk, the skim milk that remains contains a large proportion of the proteins, sugar, minerals, and Vitamins B and G that make the whole milk valuable. True, skim milk compared with whole milk is lower in fuel value, not so rich in flavor, and a poor source of Vitamin A. But add an ounce and a half of butter to a quart of skim milk and you will get the same food value as a quart of whole milk. If you are not, for reasons of economy, buying an adequate supply of whole milk, you can, at little expense, safely use skim milk to increase your milk supply provided you make sure to get your Vitamins A and D from other foods or fish-liver oils.

Evaporated milk is whole milk with about 60 per cent of its water removed. One pound is equal, on the average, to about 2 pounds of fresh whole milk. Seventeen ounces of evaporated milk contains about the same quantity of solids as a quart of whole milk. Dilute it with an equal measure of water and you can use evaporated milk in most of the same ways as fresh milk. Condensed milk is like evaporated milk but sugar is added.

Bacteria-free when the can is opened, evaporated milk has a somewhat lower vitamin content than fresh milk because it has been heated, but it is a good source of Vitamins A and G. Like other milk it needs to be supplemented by foods rich in Vitamins B, C, and D. Quality of different brands and of cans of the same brand is practically uniform so there is no need of being suspicious of bargain prices.

Other forms of milk — such as cheese, which represents most of the solids of the milk from which it is made with the exception of milk sugar — cream, which is much richer in fat than milk and contains more Vitamins A and D — butter, best of all milk products as source of Vitamins A and D — all may have an important part in a well-balanced diet. A useful guide to consumers who want to figure out the most economical way of getting adequate amounts of milk into their families' diets is given in "Milk for the Family," prepared by the Bureau of Home Economics and available from the Superintendent of Documents, Washington, D. C., for 5 cents. This handbook will tell you, too, the very important rules for taking care of the milk you buy so that not only do you get the kind you should have but keep it up to that standard after it arrives.

MILK PRICES

Since July 16 consumers in Boston have been obtaining class 1 milk a cent a quart cheaper. Producers have been receiving a cent a quart less. This lowering of the price to the producer under the Federal license and the consequent lowering of the retail price by the State milk control board was necessitated by the large increase in the supply of milk and by difficulties in enforcing the higher price. The spread between what the producer is now receiving and the consumer is now paying is approximately the same as it was before the price to each was lowered.

Before this lowering of the retail price by a cent, consumers in Boston paid 2 cents a quart more for milk than they paid a year ago. This price was still, however, 2½ cents per quart less than they were paying at the peak of prosperity in 1929.

This increase from 11 to 13 cents came in two stages, 1 cent in October, 1934, another cent in February, 1935.

Each advance in consumer price came with a price rise to farmers under the A.A.A. milk license for Boston. Each increase to consumers was greater than that to farmers.

October's increase to farmers was $\frac{2}{3}$ cent a quart. With an advance of 1 cent to consumers, distributors were left with an additional $\frac{1}{3}$ cent per quart.

February's farm price increase was another $\frac{1}{2}$ cent, which left distributors with another $\frac{1}{2}$ cent gain. This increase of price to producers was originally a temporary one, to be terminated May 1. It was renewed to June 1 and later extended indefinitely.

At the end of a year, then producers were receiving 1 1-6 cents per quart more; consumers were paying 2 cents more, and distributors were receiving 5/6 cent more.

Behind the two advances lie many of the complications and conflicts involved in working out a milk policy in the best interest of farmers and consumers and in tackling the job Federally and locally at the same time.

Milk licenses under the A.A.A. have nothing to do directly with fixing prices to consumers. They are designed to carry out the policy laid down by Congress in the Agricultural Adjustment Act by gradually lifting dairy farmers' prices up to a parity for the long-time purpose of insuring a steady flow of milk from the farm to city consumers.

Producers representing the major part of the milk sold to a certain city or area may apply to the A.A.A. for a license. If their application is approved, public hearings are called when all parties affected have opportunity to be heard. Afterwards a license may be issued to distributors selling milk within this city or area. Under this license all distributors must pay farmers certain minimum prices. Boston's license is one of some 40 licenses now in operation.

Minimum prices fixed by a Federal license to farmers cannot exceed "parity." When farmers get "parity" they will receive a price which will enable them to buy as much as they could buy with the price they received in pre-war years. The rate at which prices are raised towards parity depends among other things upon the state of consumers' demand. Further, in order to insure market stability, prices of milk for city distribution must be kept in reasonable relationship with prices of milk used for manufacturing dairy products.

Prices to consumers are not fixed by Federal milk licenses but they may be fixed by State milk control boards, which is the case in Boston. Where there is no retail price fixing, the level of consumer prices is left to competition.

Producers serving Boston applied in February of this year to the A.A.A. for an amendment to the license for that area which would increase their returns 23 cents per 100 pounds on milk ($\frac{1}{2}$ cent per quart) for city distribution. They gave these reasons: First, the cost of feed for dairy cows had been increased, due to the drought; second, since the price of butter had increased and producers' prices for milk to be sold in bottles are geared to the price of milk going into the manufacture of butter and other dairy products, producers should get more. Finally, the producers argued that even with the increase, the price to farmers would still be below parity. With the increase, Boston producers would get \$3.49 per 100 pounds, F.O.B. Boston, or $7\frac{1}{2}$ cents a quart. Parity price, as computed by the Dairy Section of the A.A.A., was at that time \$3.77, or 8.1 cents per quart.

These same arguments were advanced by the producers for maintaining the price increase beyond May 1, which had been the date originally set for the termination of the price increase when it had been allowed in February.

Producers' arguments both in February and June were considered carefully. While recognizing that the price of feed had materially increased, it was contended that this higher cost had been anticipated and provided for in the higher price paid to farmers ever since October, 1934. Later, in June, it was pointed out that the effects of the previous year's drought on the cost of feeding dairy cows had been largely eliminated.

Second exception had to do with the tie-up with milk for manufacturing butter and other dairy products. While the argument of producers for an increase in fluid milk prices in February had been justified by the increase in the price of milk

for manufacturing butter and other dairy products, between February and June there had been a substantial drop in the price of milk for the latter purpose. If the increase in butter-fat prices was an argument for a higher fluid price in February, it was believed the decrease in butter-fat prices by June 1 constituted an argument for lowering the price.

Finally, it was pointed out that, even though the price was below parity, it would be difficult to keep it at the existing level. Such a price would induce an increase in supply which would seriously impair the stability of the market. It would give producers in the Boston milk shed substantially more than received by producers in the New York milk shed or in other areas from which Boston might be supplied. It would be burdensome to such consumers as had not received a proportionate increase in income.

In October, 1934, it had been recognized by all concerned that the increase of $\frac{2}{3}$ cent per quart to farmers would almost certainly be followed by a 1-cent increase in the price of milk to the consumer. Again the $\frac{1}{2}$ cent per quart advance to farmers in February, it was taken for granted, would be followed by another cent increase to consumers. Both changes would result in widening the spread between farm and consumer prices.

"Spreads" talked about here refer only to the margin between the price consumers pay for milk delivered to their doorsteps and the price farmers receive for the milk that goes into these bottles on which farmers have already paid all costs of delivery to dealers' city plants. In other words, it is the spread between the highest price paid for standard milk and the highest price received by farmers.

All milk is not sold to consumers or bought from farmers at these prices. Some is sold through stores at a lower price; some is sold at wholesale at still lower prices. Lower delivery costs for such milk usually counterbalance the reduction in spread due to lower selling prices. At the other end, farmers generally are not paid a flat price for all milk they sell to cities. In most markets milk to be used in making cream brings a lower price; milk for making dairy products brings a still lower price. Farmers living near a city have lower costs of delivery to dealers' city plants than farmers remote from town, but those close to town may have higher production costs.

Complete accounting of distributors' margins must consider such differences. Although the spread as considered here covers only average charges for city distribution from the milk plant to the consumer's doorstep, it gives a rough measurement which can be used except in unusual circumstances in gauging the relative efficiency of distribution from city to city.

Producers' representatives defended this increase in spread. They argued: First, it was necessary. If spreads were not increased dealers could not be induced to pay the higher price to farmers and they would not pay in full their bills owed to farmers or co-operatives.

Second, it was argued that the spread in Boston had fallen abnormally low and was still below the average. Producers' representatives pointed to the fact that the spread in Boston even after the increase in October and February was only 5.3 cents.

Granting the fact that this margin even after the increase in February was not above the average but was indeed below the margin in other cities of comparable size and location, it was not believed a sound basis for increasing it. Where spreads are above average, reduction is desirable; where spreads are low, maintenance at the low level is desirable.

Reducing spreads or keeping them from expanding is by no means simple. It is believed, however, that wherever co-operation is feasible with State milk control boards, the policy of keeping spreads at a minimum through such co-operation should be followed. Likewise, even where retail prices are not fixed by State boards but changes in producers' prices are made, the raising of these prices by fractions of a cent so as to render probable an increase in spread should be avoided.

Increasing the price to consumers by a full cent per quart with each half-cent increase in the price paid to producers is said to be the necessary result of two factors in milk prices; (1) The need of changing producer prices by fractional amounts to keep them adjusted to the price of milk for manufacturing purposes, and (2) the difficulty of pricing milk to consumers in half cents.

Whenever the price to farmers is increased a half cent or less, it is desirable where possible that distributors charge consumers only a half-cent increase. This is possible in the case of consumers who run weekly or monthly milk bills with their dairy or who buy 2 or 4 quarts of milk at a time. Whenever it is likely that the farmer's price is to be stepped up more than once, it is preferable to raise it a full cent or nearly so at one time, rather than to make two increases of $\frac{1}{2}$ cent each.

Limiting or decreasing dealers spreads, it is recognized, is likely to limit the number of competing dealers. The distributor unable to operate efficiently may be eliminated from the market. The dealer who is eliminated is likely to be a small dealer and the social and economic implications which this involves cannot be overlooked. Nevertheless, anything which promotes an increase of efficiency is in accordance with sound economic policy and of ultimate benefit both to consumers and producers.

Some of the same elements which were operative in Boston have affected the situation in Detroit also. Without reciting in detail the past history of this situation, it may be pointed out that in February the price of milk was advanced to the producers by agreement between producers and dealers $\frac{1}{2}$ cent per quart. Thereupon the dealers increased the price to the consumer by 1 cent. The gross spread was thus increased to $6\frac{1}{2}$ cents per quart.

The Agricultural Adjustment Administration declined to use the authority of the Federal license to enforce the payment to the producers of the increase of a half-cent per quart. Payments into the equalization fund which is administered by the Federal Milk Market Administrator, however, have been upon the basis of the increased price agreed upon by producers and distributors. The retail price was not set by the Federal license, either before or after the change in price.

The office of the Federal Milk Market Administrator should not be used to facilitate the maintenance of a higher price than that stipulated in the license. Producers' representatives have insisted, however, that they have a right to help from the Agricultural Adjustment Administration in getting a price as close as they can to parity. They argue further that on account of improved consumer purchasing power in Detroit the present price for milk is not unreasonable. It is likewise contended that the relatively high spread in Detroit is necessitated by high costs of distribution.

High spreads cannot always be justified by high costs of distribution. If distributive methods are inefficient or if there are so many dealers in a milk market as to make costs higher than normal, then costs due to such causes should not be considered sound argument for requiring consumers to pay higher prices. On the other hand, if wages paid labor in the distribution of milk are at a higher rate in one city than in another, it is reasonable to expect that the spread will be higher.

Since it is not the policy of the Agricultural Adjustment Administration to set the retail price of milk, the spread cannot be directly affected by the A.A.A. It is important, however, that Federal milk licenses should not be used on a voluntary and unofficial basis to facilitate simultaneous increases in producers' prices and distributors' margins.

St. Louis offers some parallels to the milk price situation in Boston and Detroit. It presents some differences as well. In November, 1934, the price of milk to the producer was lowered, but the price to consumers stayed the same, with the result that the nominal spread was increased more than half a cent. In March, 1935, the price to the producer was advanced and the nominal spread widened again because the increase in consumer price was greater than that to producers.

This spread was not set by either the Federal or the State Government. Since the relatively high spread was not supported by governmental action, and because keen competition between milk dealers existed, the result was that the *actual* spread began to be cut. Instead of one retail price for milk, the price varied as much as two cents for the same grade of milk. This difference in price in the beginning, at least, depended primarily upon the bargaining power of the consumer. Consumers who demanded a price concession got it, while others often did not. Such a price discrimination was obviously undesirable, but it apparently represented one step in the process of reducing the spread. One factor in reducing the spread, no doubt, was consumer hostility to the increases in spreads, which had manifested itself publicly during this period.

GUIDES TO ICE CREAM VALUES

Four stages mark the route to technical perfection in buying ice cream.

Leaving pleasure, the most important incentive to buying ice cream, aside for the moment, the question of *purity* is rightly the first serious consideration of the thoughtful consumer. More technical information leads to an interest in the butter fat content of the various ice creams offered for our delectation. Growing even wiser, the consumer becomes aware that *butter fat* is only one of the milk solids in the ice cream, that the *milk-solids-not-fat* content is an even more effective measure of nutritive value than the butter fat content. Fourth and highest point of consumer competence is the realization that the keystone of the information structure is still missing, that no true picture of the contents of ice cream can be arrived at without knowledge of how much *air* has been added in making the finished product.

Purity should come first, of course. No other question has any importance until that one is answered. Some cities answer it one way, some another, some more adequately than others. Many cities require the pasteurization of all the milk products in ice cream, and a few stipulate that not only the milk products but the whole "mix" must be pasteurized on the premises where frozen. Most manufacturers of wholesale quantities of ice cream follow the latter procedure for reasons of technical efficiency regardless of whether or not the law requires it.

Publicity keeps the ice cream sold in the District of Columbia up to a very high standard of purity. Samples of each manufacturer's ice cream are analyzed each month and the percentage of butter fat and the number of bacteria per cubic centimeter in each company's products published in the monthly milk and ice cream report, issued free by the Health Department to all consumers who ask for it.

Fifty thousand bacteria per cubic centimeter is the maximum set by a Government agency in purchasing ice cream for its institutions. Many municipalities limit the bacteria count of ice cream in their districts to 50,000, but only nine States have State laws regulating bacteria count at all, and they range from limits of 100,000 to 500,000.

Significance of the bacteria count of ice cream should not be overstressed. It affords an important measure of the general sanitation of the plant from which the ice cream comes, but there are also many other important items relating to the safety of ice cream which the bacterial count does not measure. Possibly in the future ice cream may be graded, as milk now is in many areas, on the basis of its compliance with all necessary items of sanitation, which will be embodied in a standard or uniform type of ice cream ordinance.

Consumers job before all others is to make sure your ice cream supply is pure. Look into your State, city, or county health regulations, find out how they apply to ice cream, whether inspection is adequate for enforcement. Press for the use of publicity on all the points that indicate true value in ice cream.

Second step toward consumer knowledge is interest in the comparative butter fat content of the different ice creams from which we may choose. Every State has a minimum standard for butter fat content, ranging from 8 up to 14 per cent. But it is the rare manufacturer who keeps his ice cream down to the legal minimum allowed. Federal specifications provide that ice cream purchased for Government institutions shall have 12 per cent butter fat.

Third step in consumer consciousness is the realization that butter fat, far from being the only ingredient on which information is important, is in fact the one some of us least need. The other milk solids — including minerals for building bones and teeth, proteins that build and repair tissue, and carbohydrates for fuel — rank high among food values in the diet, especially of children. Twenty-two States go farther in their regulations than the butter fat content. Many of them regulate the percentage of both butter fat and total milk solids including butter fat which by a simple process of subtraction gives consumers the minimum legal percentage of milk-solids-not-fat. The legal minimum percentage of milk solids in these States runs from 18 to 20 per cent. Some others merely prescribe a minimum percentage for all solids, of from 30 to 35 per cent, of which no subdivision is made except for butter fat. The job for consumers here is to find out whether your State or city rules on this important point and how effectively.

Fourth step marks the graduation of the ice cream consumer. From this

pinnacle of knowledge, the consumer can see that the second and third steps can only be of academic interest without the addition of the fourth, that no consumer can judge his money's worth of ice cream without knowing how much air was whipped into the mixture after these percentages had been ever so desirably assembled.

Some air is necessary, of course. The procedure for making ice cream of the texture consumers demand calls for beating the "mix" to more or less fluffiness, and then hardening it. Whether its more fluffiness or less is the key consumer question. In the technical terms of the ice cream makers, it's a question of "density," the percentage of "overrun." One hundred per cent overrun would mean 50 per cent air. Fifty per cent overrun would mean about one-third air. Most ice creams range between these two percentages, though it is not unheard of to find ice creams running all the way up to 130 per cent overrun which would mean about 56 per cent air. On the other hand, the Government in buying for institutions specifies ice cream of not more than 100 per cent overrun, or about 50 per cent air. To put that standard in easier terms to measure, the ice cream bought by the Government must weigh at least $4\frac{1}{2}$ pounds to the gallon. That figures out at one pound and two ounces to the quart, or about nine ounces to the pint.

Consumers may test money value of ice cream by comparing pints or quarts of the ice creams they like, and figuring the price of each per pound. For this purpose $4\frac{1}{2}$ pounds to the gallon may be used as a minimum yardstick, but not necessarily as an ideal. Your ideal depends on how rich an ice cream you want, and what you pay for it. One manufacturer reports that he kept his ice cream up to a standard of five and a half pounds to the gallon, right through the depression. The significant thing about his experience is that it has paid. His records show that he has made more money than those of his competitors who lowered their quality in order to sell at a cheaper price. One factor that counted was that his customers knew what they were getting. He made it clear to them exactly what went into the ice cream they bought from him, and how much weight they were getting in every quart. To give the weight of five and a half pounds to every gallon, he kept 70 per cent overrun standard. That means an ice cream of about 42 per cent air.

No federal *standards* exist, so far, for ice cream. But there is recognition within the Government of the need for designations that will make clear whether a product is ice cream or iced air. As it is now, no matter how high you puff it, you can still call it ice cream. Specialists in the Bureau of Dairy Industry in the Department of Agriculture have given much study to the subject. They are working on specifications for grades for different types of ice cream, based on the ingredients used and the amount of overrun. From all signs, it seems certain that the more progressive ice cream manufacturers would welcome accurate designations, for use at least within the industry.

Government specialists are constantly producing information for the use of the industry, on the theory and practice of ice cream making, the preference of consumers for various types of ingredients, and so on. One good example of their recent work is research that showed the industry how to reduce the air content of ice cream after it had been frozen. Another example of this type of information which helps both the trade and the consumer is a new statistical table showing exactly how much it would cost ice cream plants of four different capacities to raise the quality of their ice cream by adding one pound per gallon to its density.

Outstanding in their use of technological and scientific developments for the improvement of their product, ice cream manufacturers welcome the co-operation of Government workers. As a direct result of this educational work by Government and the industry, consumers buying ice cream today can usually count on getting for their money a product immensely improved over what they were able to buy 20 years ago.

Sanitation of plants has made revolutionary progress, so that now most plants of sufficient size to do wholesale business can take pride in showing visitors through the whole works. Food value has been increased, raising, for instance, the content of solids in ice cream. Higher standards dictate the selection of ingredients, instanced by the rapid trend away from the use of synthetic flavors.

Vitamin D ice cream, offered by some manufacturers as an additional mark

of progress in the industry, raises certain questions for the consumer. The best answers to these questions, so far, from the nutrition experts in the Department of Agriculture are something like this. Most scientists who have studied vitamins feel that we do not know enough yet about what grown people need in the way of Vitamin D, or even whether they need any Vitamin D at all beyond what comes with a good diet.

Of course, it is agreed that to prevent rickets children under 2 years of age must have Vitamin D provided in some special form to supplement the foods in the best-planned diet. But ice cream is not on the diet list of babies under 2 years old. Their foods for one thing, should be warm. Hence the conclusion of the experts that as far as we know now, Vitamin D should be added only to strictly standard infants' foods. Even if they should find out definitely that grown people do need more Vitamin D, and the precise amount, we'd have to eat ice cream very regularly and know exactly how much Vitamin D we were getting in every serving, in order to use it for that purpose.

Present information, therefore, provides only this advice for ice cream consumers: (1) Make sure of the purity of your ice cream. Judge it, besides for taste, on (2) butter fat content, (3) milk-solids-not-fat content, and both in relation to (4) weight per gallon.

BETTER BREAKS FOR BUTTER CONSUMERS

Good news for butter consumers comes from more than one front.

One State butter grading law celebrated its first birthday on April 4. Beginning last spring, Oregon consumers no longer needed to buy their butter blind. Every pound of butter that went into circulation there had to be graded A, B, or C. In the year since the State Agricultural Act went into effect, consumers put their reaction on record by eating more butter. This seems to show that consumers can find more room in the food budget for a product of known quality than for a guessing game.

Other significant items on the Oregon record tend to prove that grade standards are good business for all parties to the butter contract. Creameries made more Grade A butter and less of the grades now known as B and C than they did last year. Oregon dairymen produced nearly a million and a half more pounds of butter than in the same period the year before.

Another state with butter grading laws is Washington. Idaho and California are considering legislation containing similar features.

Butter producers and manufacturers of 11 western States attended hearings a few months ago on a proposed marketing agreement in which one requirement would call for labels showing A B C consumer grades on all packages.

Consumer organizations sent representatives to the hearings to urge consumer grades in the marketing agreement, which would cover California, Colorado, Arizona, Nevada, New Mexico, Montana, Wyoming, Idaho, Utah, Washington, and Oregon. These States, producing 225,600,000 pounds of butter in 1933, are big butter States, but biggest are Iowa, Michigan, Minnesota, and Wisconsin, the group responsible for 44 per cent of all the country's supply in 1933.

A B C grades are real butter news. Grades have existed before, but not grades consumers could use. The United States Government set up standards for "scoring" butter in 1919, through the Bureau of Agricultural Economics in the Department of Agriculture. When people buying or selling butter use this scoring system they do it of their own accord, paying a small fee for the service. In 1933 Government graders marked about one-eighth of the creamery butter the United States produced.

Score means practically nothing to the average consumer. To the Government grader it means the total of the butter's rating on five different counts: (1) Flavor; (2) Body or texture; (3) Color; (4) Salt; (5) Package.

Ninety-three score is top mark for most market butter. Translated into terms for consumers to use in buying, 93-score would be called AA in the proposed marketing agreement. Added stipulation is that if 93-score AA butter is not quoted on the regular market exchange, it must not be sold at less than 0.5 cent above the price of 92-score.

Ninety-two score butter would rate a grade of A, under the marketing agreement, and Oregon grading laws coincide. Grade B would mean 90-score butter,

and 90-91 in Oregon. Grade C would mean 88-score butter, and 89 or less in Oregon.

Consumer organizations suggest one improvement in grades now included in proposed marketing agreement. They say Grade AA is confusing, that top quality butter should be Grade A, other grades adjusted accordingly.

Washington State grading law says all butter scoring less than 90 must be marked "Under Grade — Made from No. 2 Cream."

Cream grading, as part of the proposed marketing agreement, would mean more good news for consumers. The provision states that cream producers shall be paid according to grade. This would encourage farmers to deliver their cream sweet to the creamery, essential to the best butter, according to experts. If farmers and small producers do not get more to pay them for the extra trips, they are more likely to wait until their cream supply has accumulated before they take it to the "cream station" or factory. During this waiting period the quality of the cream may deteriorate and off-flavors may collect in carelessly protected containers. One can of poor cream can spoil the entire lot of butter in a creamery.

Minnesota passed a law only recently establishing three grades of cream. A few other States have cream-grading laws, and several more are considering them.

Intensive campaign for high quality cream in the dairy industry, stimulated by the Food and Drug Administration during the last months, brings more good news to butter consumers. Food and drug inspectors are concentrating on the watch for unfit cream and butter, along with their regular vigilance over the other foods and drugs that might be harmful for consumers. Since the beginning of the year, they have seized as unfit for consumption over 11,000 pounds of butter and 3,500 gallons of cream. They found that no one section of the country was more guilty than another in using objectionable cream.

Steps forward, no matter how short, are welcome in direct ratio to the need for them. To consumers studying the facts in the butter situation, all good news seems very good.

Butter facts came to light in Minneapolis when investigators from the agricultural department of the State university gathered information first-hand. They went into 600 retail stores in various parts of the city. Eighty-four brands were on sale, the price varying as much as 10 cents a pound in different parts of the city. Quality accounted for part of the variation. The type of store, its service and volume of business, played a part in the price difference. But the highest quality butter did not necessarily turn out to be the highest in price. For example, 90-score butter (proposed Grade B in the marketing agreement) sold at prices ranging from 24 cents to 32 cents. Butter, 93-score, sold at prices all the way from 27 to 35 cents. Stores of the same type sold the same quality of butter at different prices, and different grades of butter at the same price.

Minneapolis housewives received their quota of questions. Investigators asked them whether they knew what butter scores meant. To the surprise of the questioners, three or four out of a hundred housewives did know what the different butter scores signified. The investigators pursued the matter further. They learned that each of the women who knew the meaning of butter scores was the wife of one of the men who make a career of butter marketing.

Minneapolis reflects the situation in the butter market everywhere in the country. Whether consumers buy a waxed paper-wrapped carton of quarter pounds or an irregular blob of "tub" butter from the grocer, or a cheesecloth-covered mound on a plate from a country neighbor, taste and smell have often seemed to be the consumer's only guide to quality. When buying packaged butter, consumers can seldom use these guides before buying.

High price is no quality guarantee. One manufacturer in a large city is now wrapping "process butter" in one-sixth- and one-eighth-pound sticks, selling them for 8 and 5 cents each on local markets, not subject to the regulations of interstate commerce, bringing the price of a pound of "process butter" up to the price of a pound of good creamery butter.

"Process butter" is the label required by Federal regulations for butter that is made over from "packing stock," which originates this way: In some parts of the country, farmers trade in their butter at the local country store. The storekeeper holds whatever he cannot dispose of until he has quite a supply to send to the

jobber. This indiscriminate mixing of fair and poor quality of butter lowers the quality of the whole lot. In order to produce a marketable quality it is necessary for the butter to go to a process-butter factory where it is melted, filtered, and aerated for several hours so that no trace of its past shows to the naked eye.

Butter impurities too small to be caught by a filter could not be detected until 1934. Then the Food and Drug Administration perfected a process for microscopic examination and detection of insoluble matter in butter. Armed with this scientific gage they began to make seizures of unfit lots of butter which had been shipped in interstate commerce.

If consumers in other places react as Oregon consumers did when given a chance to buy with certainty of quality, then America might step up its butter consumption a long way. As it is, we are only average as a butter-eating nation. Our total consumption sounds impressive — 2 billion pounds a year. But it averages out to just a little more than 18 pounds apiece. New Zealanders, living in a land that boasts about the quality of its butter, eat an average of 40 pounds apiece each year.

Better breaks are ahead for Canadian consumers, too. Cream grading laws have been enforced there for a long time. But not until this year did consumer grades appear on any butter packages in Canada. Beginning May 1, consumers in the Province of Alberta bought their butter labeled, "First Grade," "Second Grade," "Third Grade" or "No Grade" and could pay accordingly.

Cream grading alone cannot bring butter up to top possibilities. When creameries pay farmers better prices for better quality cream according to law, and then have to sell the higher quality butter at no higher price because the consumer at the end of the line has no inducement to pay for quality, the incentive for high quality is lost.

Better health is on the cards for better-butter eaters. Butter ranks as an "excellent" source of Vitamin A, which helps to prevent infection, is necessary for well-being at all ages. Among milk products butter is the best source of the sunshine Vitamin D, hardest vitamin to find in the regular food supply.

Butter varies as to its vitamin content. Recent studies by nutrition experts show that butter from cows grazing on fresh pasture is three times as rich in Vitamin A and in Vitamin D as butter from cows on a diet of dry feed. From now on through the summer, then, consumers can be sure of getting vitamin-rich butter.

Winter butter is not necessarily low in vitamin content nowadays. That depends on how the dairyman has fed his cows. The more progressive dairy farmers have learned how to make up a winter ration that supplies vitamins, meaning more good news for butter consumers.

CHARTING THE COURSE OF BETTER CHEESE CONSUMERS

Taste and food value are the twin pots of gold at the end of the route of cheese consumption. And because cheese is a concentrated food, these pots are packed full of good measure for your money.

Ten pounds of milk go into every pound of cheese that is manufactured — and with them most of the constituents which make milk so necessary and valuable a food. Most of the milk solids of the original milk are represented in cheese. Some of the lactose, some of the protein, and a part of the vitamin and mineral content go into the discard with the whey or liquid residue from cheese making. Even counting these losses, cheese remains an excellent source of protein, like meat and eggs, for building body tissue, of certain vitamins for the general good of the body, and of calcium and other minerals vital to good straight bones and strong teeth. Five ounces of American Cheddar cheese are usually accepted as the equivalent to the food value of one quart of fluid whole milk. And at the same time cheese varies your diet with stimulating flavors not to be had from any other food.

Eighteen varieties cover the list of basic kinds of cheese. But by name there are 400, most of these names being of local origin, usually named after towns or communities. Europe, of course, leads in variety and production, as well as consumption of cheese, but many types are made in the United States and a few are American in origin.

Milk used in cheese manufacture is one determination of the type of cheese produced. Cow's milk is the basis for most cheese, but goat's milk and sheep's

milk are called for in producing certain distinctive cheeses. Even buffalo's milk is used for a little-known Italian cheese.

Whole milk and skimmed milk form the base for different cheeses. Whole milk cheeses are good sources of Vitamin A. Best known whole milk types are Cheddar, Limburger, brick cream, Roquefort, Swiss, and Camembert. Cottage cheese is a skimmed milk product.

Europeans take more advantage of this bargain package of nourishment than do Americans. The average Swiss citizen eats 16 pounds, the German 10½, and the Britisher 8½, while the average per capita cheese consumption in America is only 4½ pounds per year. Naturally, these countries whose cheese consumption is high produce a great deal more cheese. The taste of the country is not the only reason. Cheese making requires the co-operation of nature. Climate should be of a certain brand. Bacteria or "molds" necessary to the characteristic ripening of different cheeses apparently thrive better in Europe and favor European cheese making. Cheese fanciers will be glad to know, though, there are artificial ways of duplicating these European conditions in this country. Two things stand in the way of these artificial means becoming generally used here — cost and the cheese consumer's preference for an imported label.

Cheese age has much to do with the flavor of certain varieties. Roquefort, famous sheep's milk cheese, requires 5 or 6 months' ageing and it will keep indefinitely. Contrariwise, cream or Neufchatel type cheese requires only 5 or 10 days' ageing and is best eaten within a few days after its manufacture.

American cheese is far and away the favorite of the cheeses made in this country. In 1930 we produced more than 3 times as much of it as of all other kinds combined. American cheese is really Cheddar cheese — named for the English village where it has been made for over a hundred years. Strictly speaking we should call ours "American Cheddar." It is made in various sizes, from 10 to 80 pounds in weight. Each size has its special name such as "Daisies," "Long Horns," "Flats," but the quality is the same.

Flavor and texture of American cheese depend on several things: The kind of milk used, the way it is handled, the length of time and temperature at which it is cured.

Sampling is your best guide to flavor. If you are a cheese lover it takes only a crumb to tell you all. "Sharp" cheese is simply American that has been allowed to age from 8 months to a year. Mild-flavored American is anywhere from 4 to 7 months old.

Full directions can be acquired by consumers with technical ambitions in the direction of making American cheese from the Department of Agriculture publication "Making American Cheese for Home Consumption." Send 5 cents to the Superintendent of Documents, Washington, D. C., and ask for Farmers' Bulletin No. 1734.

Pineapple cheese, so-called from its shape, is really a form of American Cheddar. It has a slightly different flavor from American and is more expensive. It is cooked at a higher temperature and consequently requires a longer time to cure. Any cheese which requires a longer time to cure usually sells for a higher price. Pineapple cheese has less moisture than American and gives consumers a slightly higher percentage of fat.

Most pineapple cheese consumers use it as a spread. To conserve it to the end, remove the top and dig the cheese out as it is needed, replacing the top between times.

Brick and Munster cheese are second to American in quantity produced. This type is like a *soft* Swiss cheese, its flavor strong and sweetish. The texture should be elastic with many small round eyes or holes. About 2 months are required for it to mature. Look for a well squared-up piece of a pale yellow color when you are buying brick cheese. If it is beginning to flatten out it will probably be too soft to please you.

Cream cheese, mild-flavored popular product in the 3-by-2-by-1-inch tinfoil package, is third in volume of American cheese production. Best when fresh, it calls for icy storage.

Milk for cream cheese, according to Federal Standards, is enriched with added cream. The cream is thickened and allowed to drain for about 4 days. Then

it is salted and molded. In a few days it is ready for use. Exceptionally rich among cheeses, not less than 65 per cent of the solids must be milk fat. Cheddar is required to have not less than 50 per cent of fat in the solids.

Details of the process of making these practical home-manufactured types of cheese are in "Neufchatel and Cream Cheese," for sale at 5 cents as Farmers' Bulletin No. 960, from the Superintendent of Documents, Washington, D. C.

Cottage cheese, sometimes confused with cream cheese, is made from skim milk. While it has very little fat and is therefore low in fuel value, it is an excellent and inexpensive source of protein, of Vitamins B and G, and of calcium and other minerals. It presents unlimited possibilities for filling the gaps in the milk quota as it can be used in numerous ways — in salads, sandwiches, or plain. Some people like it with sugar and served in this form it can occasionally fill the place reserved for sweets in the menu. Others like it with cream. Cottage cheese is often sold with indefinite amounts of cream added. The labeling "creamed" cottage cheese, is intended to distinguish this product. It can even be used as the basis for a main dish of a meal. Not only does it supply nourishment but it helps reduce expense and has a definitely "come-hither" quality.

Simplest cheese of all to make at home, cottage cheese, is a practical ending for milk accidentally allowed to sour. Directions are given in Farmers' Bulletin No. 1451 — "Making and Using Cottage Cheese in the Home," which may be bought from the Superintendent of Documents in Washington, D. C., for 5 cents.

Swiss cheese takes fourth place in U. S. cheese production. In the past we imported half of all the Swiss cheese we ate. Now we import only a fourth. Only recently have we learned how to make Swiss with all the characteristics of the imported variety.

Official name for Swiss is Emmenthaler, for the Canton of Emmenthal in Switzerland, where it was first made. One hundred to 220 pounds is the average weight of a Swiss cheese. They are usually round and flattish — 3 to 4 feet across and 8 to 10 inches thick. Holes in Swiss cheese of first quality are fairly regular in spacing and shape. They vary from the size of a nickel to that of a half-dollar. Tiny holes indicate too high fat content but do not usually affect the flavor of the cheese. Pin holes are a sign of poor quality and often a bitter taste.

Curing Swiss cheese takes from 6 to 10 months in Europe and 3 to 6 in the United States. When ready, it has a hard rind and will keep indefinitely. It is better to buy it in small quantities as you use it, unless you have room for a sizable segment of the whole cheese, as it dries out quickly after being sliced.

Limburger — fifth in popularity — is named for the Belgian town of Limburg where it was first made. Wisconsin and New York make practically all the limburger in this country and such good limburger that we no longer import any at all. The strong characteristic odor of this cheese has made for it many enemies. But once this barrier is passed, the cheese has a surprisingly mild and subtle flavor, delightful to many. It is a small cheese — about 6 by 6 by 3 inches, weighs around 2 pounds, and is soft and runny when ripe. You will find it on the market only in the fall and winter, as it is rather perishable. Keep it on ice in an air-tight tin, if possible.

Roquefort cheese, imported from France, is popular with after-dinner nibblers and with those discriminating dabblers in *hors d'œuvres* and salad dressing. Made from sheep's milk, with or without the addition of a small proportion of cow's milk, it requires 5 or 6 months' ripening. The mottled green appearance which gives it that Roquefort look when fully ripe comes from inoculation of a special mold — *Penicillium roqueforti*. For the last 15 years, the Bureau of Dairy Industry of the Department of Agriculture has made American or domestic Roquefort successfully from cow's milk and is co-operating with various state agricultural colleges and commercial concerns in their experiments.

Cold storage in a covered container insures Roquefort's keeping qualities. It can be kept indefinitely.

Parmesan cheese is the *sine qua non* of Italian spaghetti. What we use in this country is practically all imported. Parmesan is very hard and will keep for years. Practically impossible to cut, it can be broken and grated easily if properly made. Some grocers and delicatessen stores now sell small waxed paper or cardboard containers of grated Parmesan cheese, put out by large cheese manufacturers. It is a

good idea to buy just what you need of this, as it is fairly expensive and is likely to dry out after the container is opened.

Camembert from New York and Wisconsin has almost replaced the imported cheese. Made from cow's milk, it is allowed to cure from 4 to 6 weeks. When ready to eat, it is soft and creamy inside a stiff crust which is either the best part of the cheese or the discard depending on which side of the age-old Camembert controversy you take. Some other varieties of cheese, formerly imported, are being replaced by domestic brands.

Italian type cheeses of the mild, soft kind are produced more extensively in California than in any other State. Wisconsin and New York — next in volume — produce less than half as much.

Process cheese is the name given to all reworked cheese. A recent product, it has taken an important place in the industry. Under it come the soft cheese sold under brand names, usually wrapped in tinfoil, in small cartons, American Cheddar, Swiss, brick, and Roquefort may all be processed. Processing consists in general of grinding up the cheese, cooking it with solutions of certain salts which prevent fat separation, and pouring it into containers to "set."

Flavor and texture of process cheese depend on the age of cheese used and the time it is cooked. If American Cheddar, for instance, is more than 7 months old, experts say, the process cheese will be grainy. If less than 4, it will be rubbery. Thirty-seven to 40 per cent moisture is best for slicing. With less, the cheese breaks, with more it sticks to the knife. Though processing does not take away food value from the cheese used, there is proportionately less cheese in a pound of the processed product which is made up partly of the emulsifying salts added to the original cheese.

Canned cheese is a new way of marketing natural American Cheddar and Roquefort — this last in small quantities. Cans with air vents allow the cheese to continue maturing and prevent the formation of a rind. Sizes sold are 1-pound, 2-pound, and 12-ounce round cans for home consumption, and a 5-pound oblong shape for sandwich shops.

Legal standards for some types of cheese have been established by the U. S. Department of Agriculture. American Cheddar must contain no more than 38 per cent moisture. Other cheese standards are described in "Definitions and Standards for Food Products," a free pamphlet available from the Food & Drug Administration, Washington, D. C. Ask for Service and Regulatory Announcement, F. D. No. 2.

Voluntary grades have also been set up by the Department of Agriculture for American cheese. A few manufacturers have taken advantage of this presentation of the quality values of their cheese to the consumer. To be sure of the grade when buying cheese, look for the grade mark on the rind or on the can. 93- and 92-score mean first qualities.

Wisconsin produces most cheese in the United States. Since 1910 it has been the leading State and in 1930 Wisconsin alone produced almost twice as much American Cheddar as the rest of the country combined. In Plymouth, Wisconsin, is the principal cheese exchange where wholesale prices for American Cheddar, Domestic Swiss, Limburger, and brick cheese are established every week. Two more cheese exchanges are located in New York City and Chicago.

Farmers received 74 million dollars for the 5 billion pounds of milk which went into cheese production in 1930. In 1935, according to present estimates, they will probably sell about 3.8 billion pounds of milk for cheese making.

Cheese represents the destination of only about one-twentieth of the milk produced in this country, yet the farmers' stake in cheese production is bigger than a first glance at milk production figures would indicate. Prices of all dairy products are so closely interdependent that a rise in cheese consumption almost inevitably stimulates the dairy business in general and results in greater returns to farmers for milk sold for all purposes.

NOTES FOR EGG CONSUMERS

It's a wise consumer who knows his eggs. Especially at this time.

Spring months, March, April, May, are the season when hens work most in earnest; when prices are lowest; when consumers do well to freshen up on those hundred and more ways of tucking "nature's prize food package" into the family

diet. This year, despite a 15 per cent reduction from the 1928-32 average in total egg production — as reported on March 1 — prices dropped 16 per cent in the first 2 weeks of March, and ended up at 29.2 cents a dozen, lower than the average for the 5-year period, 1928-32.

Trace back March prices for eggs to 1913 and you'll find in all those 22 years only 7 months of March when the price was lower. In 15 it was higher — in fact, in March, 1920, it was nearly twice as high as on March 12, 1935. True, present prices are above those of recent years, but those were years when poultry farmers received ruinously low pay for their trouble in providing consumers with abundant supplies.

Those low prices to farmers were poor business for consumers for they were bound to discourage farmers from keeping up supplies. Finally when drought came in 1934 to raise the cost of feeding, many farmers were forced to sell laying hens, even when better egg prices were in sight. More than normal drop in prices in March — despite smaller supplies — seems to be due to the fact that in January and February prices stayed high too long. Result was that more eggs than usual went into cold storage.

Nutritionists would wax lyrical, if given the chance, over this prize packet of food. Apparently, if we had to go without milk, our next best bet in a single food would be eggs. Each egg has in it all the nourishment necessary to make a chicken step right out on its feet when it's hatched.

Chicks have one advantage over human consumers; they can get their necessary calcium from the shell of the egg. We have to get our calcium from some other food like milk. Aside from calcium and Vitamin C, however, eggs have a rich supply of every known food substance human bodies need for growth and development.

Most amazing is the supply of the sunshine Vitamin D. Only a few foods contain that valuable vitamin. Fish, liver oils, of course, are richest in it. Now that poultrymen, producing on a big scale, are feeding vitamin-enriched diet to their hens, consumers stand a better chance than ever of getting eggs in which Vitamins A and D are high.

Flavor, as well as price, has much to do with consumers' enthusiasm for eggs, and wise poultrymen know this. That's behind some of the most important new developments in egg business to protect the freshness of the eggs you buy because freshness affects flavor.

Here's a sample of what's being done. Instead of delivering eggs to stores in the same trucks with other supplies, some merchants are planning to bring eggs each morning to retail stores by special truck with odorless humidified refrigeration. Fresh eggs show little shrinkage of egg contents inside the shell. Humidity prevents that shrinkage. Some big egg distributors are now collecting eggs each night from farmers in these refrigerated trucks, and farmers are urged to gather their eggs three or four times a day to minimize their exposure to heat and sun.

Distance from markets is coming to have little importance in egg-freshness. Eggs that start to market from far away may be even fresher, because of special care taken in transporting them, than ones produced close by and moved to market unrefrigerated. Modern refrigeration is taking all the fun out of cracks at cold storage eggs. There's little reason why cold storage eggs, properly refrigerated, should not taste as delicious as fresh-laid ones. In fact, storage eggs are eligible for government grading the same as any others, with one stipulation, that they must be marked "cold storage."

Grading takes the guess out of buying eggs. About half the States have some kind of egg legislation in force, some good and some not so good, intended to protect consumers on the quality they buy. United States standard grades have been worked out, too, and many eggs graded under these standards are sold today. Here are the top three grades: *U. S. Special*, too good for most commercial purposes, the kind you buy for convalescents; *U. S. Extra*, your breakfast egg, top grade in most graded markets; *U. S. Standard*, the egg you buy from the "Grade B" basket if your marketing is protected by good legislation. The seal on the carton of graded eggs tells you which grade you are getting. It carries, too, the date when the grading was done.

Canada credits grading with stepping up egg consumption to the benefit not

only of consumers but of producers. Our average consumption is somewhere around 21 dozen eggs a year, about 252 eggs, that is. In Canada, the average is about 360. Grading in Canada is compulsory. Here it is voluntary, but more consumers are coming to require it. More merchants are coming to value it.

Size of eggs, too, is important. Every consumer knows what a gamble he takes on the *amount* of egg in a dozen unless he buys the graded kind. Now hatchery men are reducing that hazard. Not so long ago the commercial hatchery men got together and agreed on an A.A.A. code requiring every dozen eggs set for hatching chickens must weigh at least 23 ounces, or 1 11-12 ounces per egg. That's a good sized egg. Egg size is hereditary. Since most of the big egg producers buy their baby chicks from these hatcheries, the result should be a steadily improving egg size.

This program has made possible, too, co-operation of big egg producers in a national uniform "flock improvement program" that Government poultry experts have been urging for a long time. It is due to start July first. Under that program, producers will start by disease eradication and other measures to get "approved flocks." The next step will be a "certified flock." Third, and highest, flocks will work on a "record of performance."

WHAT IS BREAD?

When bakers announce that the cost of ingredients has increased so much that they must now raise the price of bread, they are the only ones who know how much that extra cost actually amounts to in a loaf. Farmers and consumers both may have a large stake in the bread price increase but neither of them can actually gage its relation to higher costs because bakers are the sole possessors of the most important fact about a loaf of bread, its list of ingredients.

Government files are full of figures on supplies and prices of flour, shortening, milk, yeast, malt, salt, sugar, and other possible ingredients. They are full of information on the different grades and types of each. Plenty of experts are at hand who can work out a recipe. Others know how to make a loaf of bread. Still others can analyze what has gone into a loaf made by some one else.

All this ability and information could be turned to account in answering the question of Mrs. Consumer in Worktown: How much does my baker have to spend for the raw materials he puts into the bread I buy? But a great army of researchers and long miles of laboratories would have to be mustered into action to answer such a question from every consumer in the country. Consumers have not demanded such a service.

Consumers talk about bread as if it were a standard article. But bread can be anything from a mixture of flour, yeast, and water, to a product made with these ingredients plus butter, milk, eggs, and many other materials. Just as the finished article is not uniform, the quality and type of the individual ingredients used are far from standard. Take the most important ingredient — flour.

Bread can be made with flour from many different cereals — wheat, maize, rye, barley, rice, oats, buckwheat. Potatoes have served for bread making, Bananas, cassava root, alfalfa are sometimes used. In fact, nearly every plant with a fruit or product rich in starch has served at one time or another to make a loaf of bread. Seldom, however, do you find bread made with any of these other cereals without the addition of wheat flour.

Neither whims of consumers nor predilections of farmers are responsible for the fact that *wheat* is the chief bread making cereal. The major reason is that wheat flour has in it two proteins which, mixed with water, develop into "gluten." Gluten gives the elastic quality to dough that enables it to retain gas bubbles produced by yeast, or baking powder, or just air beaten into the dough. It varies in amount and quality between flours of different types.

How much gluten a flour will have depends in part on what kind of wheat it comes from. There are five commercial classes of wheat, each one important in its own way. There are many common varieties. Flours from four of these five may be used for bread making purposes. The fifth is not generally considered suitable for bread making.

Hard red spring and hard red winter wheats are the ones from which most of the bread flours are made. The spring varieties, planted in the spring of the year in which they are harvested, are grown mostly in North and South Dakota, in

Minnesota, and Montana. The winter varieties, planted in the fall of the year before they are harvested, come for the most part from the Southwest, from Kansas, Nebraska, Oklahoma, and Texas. The gluten in these two classes of wheat is superior to that of the other classes for bread making purposes. In the Pacific Northwest white wheats of hard texture are important bread flour wheats.

From soft red wheat and soft white wheat come most of our pastry flours, the kind that make the best cakes and pies and crackers, and the flours most used in homes. These wheats have lower gluten content, but can be combined with the hard wheat flours in making bread. Soft red comes mostly from farms east of the Mississippi River or from the Pacific Northwest. Biggest producer of white wheat is the latter area.

Durum, fifth of the commercial types of wheat, is used for chicken feed and to make "Semolina." Out of Semolina are made such foods as spaghetti and macaroni.

Kind of wheat from which the flour comes is not the only important basis for selecting the flour. The way the wheat has been milled makes a large difference in the type of flour that is produced.

Each grain of wheat has three important parts: The floury part, called the endosperm; the germ; and the husk. The germ portion of the wheat represents only about 2 per cent of the entire grain, but it is one of the richest known sources of Vitamin E, an excellent source of Vitamin B and G, and a fair source of Vitamin A. The wheat germ is contained in the whole-wheat flours, but not in the more refined product. The germ tends to become rancid in time, and therefore flours containing it must be utilized promptly or handled in a way that will prevent the development of rancidity.

Wheat flours are sold under some 15 thousand different brand names, but all of them can be generally put into four big grades. At the bottom of the list comes "low grade." Next, "clear grade." Then comes "straight" flours. Tops are "patent." Top and bottom are not distinctions in food value; they are commercial designations. Bottom may have greater food value, but from a baker's point of view that type of flour is inferior because it has a lower quality of gluten and does not make so white a loaf.

"Low" grade flours are seldom used in making white bread. They are the cheapest flours sold.

"Clear" grade flours are used principally in making rye breads, but they are found in the lower-priced flours sold in grocery stores for home baking. Only the top quality clear flours are used for white bread making.

"Straight" flours rank second in importance for white bread making and are the cheapest ordinarily used in white bread.

"Patent" flours are favorites with white bread makers. Within this grade are variations. The "shorter" the "patent," the higher the price. When you see a flour described as "fancy," "top," or "short patent," you can be sure it is one of the most expensive wheat flours. Slightly lower in price are "long" or "standard" patents.

How much these different types and grades of flours are mixed to make the loaf of bread you buy, only your baker knows. Whether he shifts from higher-priced to lower-priced flours when prices are on the upgrade, only your baker knows.

Other ingredients present less of a problem. But here again selection has to be made. Bakers can use butter, lard, or vegetable shortening in making bread. Sometimes the choice they make means a difference in the cost of a loaf. Answer to the question, how much have ingredient costs increased, can only follow answers to these other questions.

Two years ago experts undertook the problem of figuring out how much of the money that consumers pay for the average loaf of bread goes to wheat farmers. Since no information was available as to the actual formulas used by all bakers, the experts had to go about solving this problem by drawing up a theoretical formula. This was the one they worked out for a pound of white bread:

	Ounces		Ounces
Flour	10.06	Malt . . . .	.10
Yeast . . . .	.25	Shortening (lard) . . . .	.30
Sugar . . . .	.35	Milk . . . .	.50
Salt . . . .	.18		

Let's assume, said the experts, that these ingredients in these amounts are typical of the average loaf which consumers buy. Now let's go after the cost. For flour, we will take prices of standard patent at Minneapolis and short patent at Kansas City — both relatively high-priced flours. For other ingredients, we will take prices which represent good quality. For the price consumers pay for bread we will take the average price in 51 cities.

Add them all up and here is the picture of bread prices and costs as these experts worked them out. During "prosperous" years, 1924 to 1929, consumers paid an average of 9.17 cents for a pound-loaf of white bread. Ingredients cost an average of 3.43 cents. Bakers' and retailers' margin — the difference between these costs and the retail price — was 5.74 cents. Out of this margin have to come all other costs connected with the baking and marketing of bread before any profit can be figured.

That was the pre-depression picture. When depression set in, costs of ingredients began falling away. During 1929 and 1930, prices consumers paid moved down, but not as rapidly as ingredient costs dropped. Throughout those 2 years and up to February of 1931 bakers' and retailers' margin was greater than it had been in the so-called prosperous years. Then they, too, fell away as bread prices took to the toboggan.

Retail bread prices and ingredient costs together touched bottom in February, 1933. At that time the average pound-loaf of white bread sold at retail for 6.4 cents. Ingredients cost about 1.8 cents. Bakers' and retailers' margin was 4.6 cents.

Now look at the record in recovery years. From these low levels, prices and costs started uphill and climbed fast. A drought in the spring wheat area in 1933 cut down some of the mountainous surpluses of wheat which had piled up in earlier years. That shot up the price of flour. A processing tax of 30 cents a bushel of clean wheat was imposed on July 9. That added to the cost of flour about one-half cent a pound-loaf. Due mostly to increase in flour prices, costs of ingredients at the end of 1933 had reached 2.74 cents; retail bread prices had reached 7.9 cents; and bakers' and retailers' margin was 5.16 cents.

Next followed a few months when prices and costs did not change much. By mid-year new factors appeared to push up both. Wheat farmers, in 1934, had planted 6 million fewer acres in a planned effort to lift prices toward their pre-war purchasing level. Sweeping over the limited planned reduction, a terrific drought — the worst in 50 years — wiped out some 300 million bushels of wheat.

Drought wiped out millions of bushels of corn, too, and the reduced supply of hogs which followed shot up the price of lard, but since less than a third of an ounce of lard is used in a "typical" pound-loaf of bread, the price of lard could jump many cents before it would make a significant difference in the cost of such a loaf.

At its high point in 1934, the price of white bread had reached 8.4 cents. But ingredients of a pound-loaf cost 3.1 cents, so that bakers' and retailers' margin averaged close to 5.3 cents.

Throughout the first half of 1935 bread prices and ingredients cost stayed fairly steady. Farmers under the A.A.A. wheat adjustment program were required to plant 10 per cent fewer acres for the 1935 harvest than they planted in the base period. They could plant more if they liked, but they agreed that this extra wheat would be used for pasture, or if harvested as grain, that an additional reduction would be made for 1936.

New misfortunes loomed ahead. In the spring of 1935 reports of an attack of black stem rust on the hard red spring wheat growing in North and South Dakota and Minnesota came in. In addition, drought in Southwestern States threatened to wipe out some of the hard winter wheat crop there.

Quickly adjustment plans for wheat farmers were changed. Farmers who had planted winter wheat under pasture permits were allowed to harvest these extra acres for grain for the market. Provisions for reducing the number of acres of spring wheat were modified.

Black stem rust and drought greatly reduced the crop of hard red wheat, bakers' favorite for breadmaking. Even with the reduction from these two unfortunate causes, supplies of hard red spring wheat for the crop year 1935 were larger than

the year before but were still much less than average. The Bureau of Agricultural Economics estimates it may be necessary to import some 35 million bushels, or about 6 per cent of our normal domestic needs.

Rust not only reduced the quantity of wheat — it also caused a considerable amount of wheat to be low in test weight. "Low-test" wheat yields less flour. That is, more bushels of it are required to make a barrel of flour. Moreover, the proportion of the higher grades of flour produced from such wheat is lower.

Because of the reduction in the supply of hard wheat flours, the decrease in the price of bran and by-products, and the general increase in wheat prices (due not only to smaller supplies here and abroad, but to war movements), flour prices started up in early September. The increase has been highest in the case of flour made from hard red spring and hard red winter wheat, but generally has been somewhat less in the case of flours from soft wheats.

This difference in the increased price of various types of flours has major importance to bakers and consumers. If bakers use only the types which have suffered most reduction in supply and greatest increase in price, their flour costs — based on the theoretical formula previously quoted — are now probably a third of a cent greater on a loaf than they were a year ago. By that formula, total ingredient costs on October 22 add up to 3.5 cents per loaf, which subtracted from an average retail price of 8.4 cents, leaves a margin for bakers' and retailers' operations profit of 4.9 cents. But bakers also use other types of flour, the prices of which have not in all cases advanced as much. Bakers who wish to keep their costs as low as possible, therefore, might be expected to use a larger proportion of cheaper flour now than ordinarily.

But are they doing so? If so, such estimates of increases in flour costs in a loaf of bread must be readjusted to show that change.

Processing tax on wheat, some members of the trade have said, comes higher this year, and that has pushed up the price of bread.

But has it? For 2 years, ever since July 9, 1933, the processing tax has been 30 cents a bushel on clean wheat. No change has been made in the rate of this tax. How much the tax amounts to in the production of a barrel of flour depends on how many bushels of wheat are required to make a barrel.

Average test-weight of a bushel of wheat milled for bread flours in normal years is about 58 pounds. To make a barrel of flour from this type of wheat usually requires about $4\frac{1}{2}$ bushels of clean wheat. Total tax on such a barrel of flour comes to \$1.35.

Most bakers, according to reports, make 300 pounds of white bread from a barrel of flour. If millers have passed this tax on to bakers since it was first imposed — and it is claimed that they have — the tax has added about 45/100 cent to the cost of a pound-loaf of bread. That addition has already been accounted for in the increase in the price consumers have been paying for bread since July, 1933.

Black rust in the hard red spring and hard red winter fields this year had the effect of reducing the kernel of wheat and its potential flour yield. As a result, the average weight of wheat which is now being milled for bread flours is probably not more than 55 pounds. Approximately $4\frac{3}{4}$ bushels of clean wheat of this test weight are required to make a barrel of flour. The tax on such processed wheat amounts to \$1.42 per barrel of flour or 48/100 cent per pound of white bread. This is only 3/100 cent more than when 58-pound wheat is used.

Some wheat lighter in weight than 55 pounds may be milled for bread flour purposes. When it is, the amount of the tax is proportionately increased. To produce a barrel of flour from 50-pound wheat would require about 5 bushels of clean wheat. The tax in this case would be \$1.50 a barrel, or one-half cent a pound-loaf of bread. This is only 5/100 cent more than when 58-pound wheat is used. Wheat of a test weight as low as this is almost never milled for bread flour purposes unless mixed with wheats of higher test weight.

Increases in the tax paid on the processing of wheat into flour, however, must be balanced against any deductions from the price paid for low-test weight wheat. It is reasonable to believe that millers are buying this kind of wheat at a discount sufficient to cover the small added amount of the tax. If this is so, then any increase which has occurred in the cost of flour has not been due to the processing tax.

When cost of flour goes up, do bakers make changes in the other ingredients?

Cutting out one ingredient or substituting a cheaper grade might be another route to economy. But is it an economy which bakers are using?

Labor-saving steps in breadmaking and marketing may be possible to offset unavoidable increases in ingredient costs. We don't know present labor costs of making and marketing a loaf of bread. Studies have been made in the past, but there is no way to estimate present cost from reports received by the Government. Are bakers able to step down this cost, without injury to their workers, and have they done so?

Other economies along the way may be possible. Bakers know best what they might be, and how worth while they are.

Answers to these questions must come first before consumers can judge the fairness of any increase in the price of bread.

BREAD COSTS AND THE CONSUMER

During the past two months there has been much publicity regarding the advance in bread prices which occurred in some markets. Secretary Wallace and A.A.A. officials contend that the price of bread has advanced more than the increase in ingredients costs warrant. The bakers in turn claim that processing taxes and the crop curtailment policies of the A.A.A. are causing the advance in price. Both have substance to their arguments. However, there is one factor which contributes greatly to bread costs, which should readily and pertinently engage the attention of the consumer in his search for a way out, but which has been more or less obscured in the flurry of topical controversy.

We here put the question: "Can bakers reduce their costs and by so doing effect savings which can be passed on to the consumer?" Advancing material costs and rising prices give particular emphasis to the question, of course, but it is one of continuing importance to the consumer. In order to find an answer to this question, it is necessary to study the growth of the industry and its distribution methods.

The baking industry had a very rapid growth in a comparatively short time. Approximately fifty years ago all baking was done either by the housewife in her own kitchen or by a small retail baker. During the next twenty-five years the wholesale baker came into existence and quickly developed into what might be termed a large-scale operator. It was during this period that the corner grocer began to sell bread. With these local wholesale bakers as a nucleus, the large multi-state bakers came into being. They in turn, with other contributing factors, appeared to be the reason for the chain stores entering the baking industry and developing into a large and powerful group. These last two developments occurred within approximately the last twenty years. In about fifty years' time the industry has grown to be the largest food manufacturing industry in the country with annual sales well over a billion dollars.

While there are still many small retail bakers, specialty bakers (producers of rye bread, French bread, and other special types), bakers who distribute from door to door, and others who distribute through chains of retail bake shops; the major part of the bread volume is baked either by the wholesale baker or the chain-store baker. Hence a study of the distribution methods and costs of the latter bakers engages our first interest.

The large wholesale bakers, whether multi-state operators or local operators, generally have large, fully mechanized plants which permit thousands of loaves of bread to be produced each day with relatively few employees. The dough is mixed in large mechanical mixers, divided and molded automatically, baked in large traveling ovens, cooled, sliced, and wrapped without hands ever touching it — a purely mechanical operation. The method of advertising is usually the newspaper, bill-board, and radio, and thus is created a definite consumer demand for the particular brand or brands of bread.

The sales and distribution are usually made through driver-salesmen who deliver the bread directly to the grocery store. The driver-salesmen in their effort to have the local storekeepers purchase greater and greater quantities of their brand of bread have developed the practice of leaving bread on consignment.

The tendency is for each competing driver-salesman to leave more of his bread than can be sold in the hope of increasing, not total bread sales, but the sales of — and commission on — his particular brand of bread. That which is not sold is

returned to the baker the following day. The result has been waste and higher costs on that part of the bread which is sold by each firm.

The chain-store baker is not the outgrowth of the baking industry but rather of the change in distribution during the past two decades. Chain grocery stores have steadily become more numerous while the number of independent retail grocery stores has declined. As a result of growth in the number of affiliated units, many chain grocery stores have been able to put in their own bakeries. And it is to be noted that chain stores can manufacture and sell bread at a lower figure than can, or rather do, most other bakers. *This is due to certain economies which they practice.* First, they schedule production more accurately, since they usually know the exact amount of bread desired by each retail unit for the following day's business. Second, no driver-salesmen need be employed — merely deliverymen who deliver the bread to the retail unit and do no competitive selling. Third, bread is not consigned, in the course of competition among brands, and there are no stale returns going back to the bakery. Production waste is reduced, there is no loss from stale returns and no commissions to competing driver-salesmen.

In this connection it should be mentioned that the loss due to stale bread for the country as a whole runs into several millions of dollars per year. The consumer, naturally, pays for this loss. If stale returns were eliminated in the industry, a saving of from 4% to 12% would be made — and this saving could be passed on to consumers — and might enable the industry to keep prices at their present levels instead of raising them, even though ingredients costs do increase.

The industry is still using practically the same methods of distribution and sales that were used twenty years ago. They have not kept pace with the times in reducing distribution costs or adopting more modern methods. Their delivery costs are high when compared with those of the chain-store bakers — and the consumer must pay that difference.

ALL-YEAR FRUIT GUIDE

Taste puts a stronger case for fruits than could all the dietitians rolled into one. From the first time a baby reaches for the shining red of an apple, fruit is its own best salesman. "Appetite appeal" alone is enough to stop us at the fruit stand.

Nutrition experts add another to the question "Why figure to get fruit into the diet?" They offer the facts in the following chart to those consumers who find the job of making a place in the budget for fruit all the year round difficult.

Figuring is required. Few fruits can be counted on for a steady round-the-calendar item on the marketing list within range of most budgets. Developments in refrigeration, transportation, and marketing have given us a wider choice than a few years ago. But there are still many fruits that just don't show up on the arrival records at city markets in most months of the year.

Apples, pears, bananas, and lemons, of course, you can find on the fruitstand year in and year out. But even bananas, steadiest fruit of all, are just twice as plentiful in June as in January. And October supplies of apples multiply the June supply by four.

Other fruits — pineapple and honeydew melons and grapes and cranberries and rhubarb — all go to market every month of the year, too. But for people who count their fruit money they might just as well not be there at the price they command in many of the months they come.

For variety on the menu, then, it becomes especially important to watch well the fruit calendar in order to take advantage of the short season of plenty in the fruits that come but once a year, to recognize the happy moment when luxury fruits slide off the luxury shelf for a time, to conserve the family's appetite for the standby fruits by using them judiciously as the season demands, and to know when to fill in the food value gaps with dried or canned fruit.

Peak point of buying any fruit should be at peak point of supply, for prices tend to go to opposite extremes.

January rates as a good citrus month. Grapefruit are almost as plentiful as they ever get, oranges are in the steadily favorable half of their year, and tangerines have only slightly dropped from the top of their very short season.

February repeats the same story, showing a drop in tangerines but unmistakable signs that strawberries may soon be out of the luxury class.

March rings the bell for high grapefruit supplies and is next-to-best month for oranges — meaning that Vitamin C doesn't come too high.

April brings the first raspberries and cantaloupes, a feast only to the eyes of most consumers. Pineapples and rhubarb make a real showing in such quantities that some may slide off the luxury shelf.

May pushes pineapples and rhubarb into our laps with the biggest supply of the year, oranges reach the top of an all-spring plateau, more strawberries go to market than at any month of the year.

June floods the fruitstand with cherries and bananas and lemons and limes. Cantaloupes are well up into their summer plenty, gooseberries make a first and sizable appearance in the market, blackberries are almost at the top of their record, and raspberries are offering real competition. Rhubarb maintains its May stride and pineapples are still possibilities.

July, berry month of the year, boasts biggest heaps of blackberries and raspberries. Currants reach their very sudden high point of supply, and gooseberries burst into full glory only to disappear for the rest of the year. Watermelons arrive at their all-year best just in time for the Fourth of July, and limes and lemons stand by with patriotic spirit, generous enough for all picnic drink demands.

August brings riches in the form of peaches, cantaloupes, and pears, with fresh figs at the uppermost reach of their 5-month season.

September keeps many summer fruits coming in good quality, including honeydew melons and pears which compete with their own best records.

October heaps harvest home centerpieces with biggest piles of apples and grapes.

November appropriately brings Thanksgiving cranberries at their best.

December tops off the year with enough tangerines to go into the toes of all Christmas stockings.

Time represents only one consideration in making your fruit money go a long way. Food value is another point of selection. Fruit is one of the important "protective foods" along with fresh green vegetables, whole grains, milk, eggs, and meat.

Protection comes chiefly in the form of minerals to build blood and bones, and those intangible "vitamins" which stimulate the body to make most effective use of all its materials to fight off disease, to keep us geared up to enthusiastic living.

Fuel value, too, comes with many fruits. Natural fruit sugar lifts the calorie count up high in some, and puts them in the dessert spot on the menu in preference to more processed, more concentrated types of sweets.

Fiber, too, is a selling point for fruit because we need from food this natural complement of "roughage."

Fruit minerals are present; included in the list are two of the nutritionally important minerals, calcium and iron. Calcium builds bones and teeth. Iron makes good red blood.

Vitamins A, B, C, D, E, and G are the most important vitamins so far discovered in common foods on which a dependable store of information is available. Vitamin D, the rickets-fighting sunshine vitamin, does not come in fruits. Vitamin E, the "anti-sterility" vitamin, occurs in small quantities in so many different foods that a diet based on correct proportions for other food values is pretty sure to contain enough Vitamin E for the average person. So this article deals with Vitamins A, B, C, and G as the primary vitamin values for which we buy fruit.

Vitamin A spurs the body on to growth and at any age we need a regular supply of Vitamin A foods to feel well and vigorous. Without enough we are ready targets for various kinds of infections. In fruits and vegetables you can usually spot Vitamin A by the rich color. Notice that apricots and prunes and yellow peaches rank as "excellent" sources of Vitamin A, while white peaches contain none or at best barely a trace. Cooking or drying has little effect upon Vitamin A and Vitamin G in foods but consider the other vitamins before you plan to cook a fruit that can be eaten raw.

Vitamin B, often called the "appetite vitamin," perks up our interest in food, and perks up our muscles for prompt and efficient handling of it. The modern idea is to think about our Vitamin B before instead of after that lackadaisical feeling and bad disposition set in. Mothers who are building or feeding babies must make sure of Vitamin B. Many fruits have a small amount but when oranges

rank high enough to offer real competition to the meat sources or even vegetables, they take on a unique distinction in the fruit world. Vitamin B cannot survive long cooking nor drying processes.

Vitamin C, the biggest vitamin reason for buying fruits, helps to keep down dentist bills, prevent the pains we often diagnose as "rheumatism." Without enough we're likely to lose weight and appetite and overtire easily. Vitamin C is a very perishable property both inside and outside our bodies. We need a new supply of it every day of our lives, can't make up in the summer for lack of it in the winter, or drink enough orange juice one day to last a week. Heat destroys some of the Vitamin C and even exposing orange juice to air for a while before serving will deprive the drinker of his rightful amount. But two lucky breaks help consumers keep up a steady summer and winter supply of Vitamin C. One break is in the form of citrus fruit, a top-rank provider of Vitamin C, that comes to market in the months when the rest of the richest known sources don't show up, and is used raw with its vitamin potency intact. The other lucky break is the fact that dried fruit *keeps* most of its Vitamin C if treated by the sulphurdioxide method by which most of the commercial dried fruit on the grocery shelves has been processed.

Vitamin G landed in the headlines in the study of pellagra, when health scientists discovered that whole districts could be kept free from the appalling waste of this disease by improved diet. Fresh fruit, though not the best food source of Vitamin G, was one of the items that made the difference. Vitamin G loses nothing in cooking, but since it is chiefly for the more perishable Vitamin C that fruit becomes an essential to the diet, the best rule is to eat as many fruits raw as possible.

How much you get of these fruit food values depends not only on how rich the fruit is in the value, but how much you eat of the fruit in comparison with how much you eat of other fruits. Dried fruit estimates look higher than they usually work out in actual eating, unless you happen to be the type that finishes off whole packages in the uncooked state. A given weight of dried prunes has a good deal more of certain food values than the same weight of watermelon. But your estimate of the values you actually get from a serving of watermelon leaps up when you consider the weight of the serving as compared with the weight of the dry fruit that has gone, with water added, into a serving of prunes.

Canned fruit sacrifices vitamins in direct ratio to the length of time the canning process keeps the fruit exposed to both heat and air. Processing done in closed tin cans keeps most of the vitamins in. As to the calorie count, canned fruit may rate a good deal higher than the rating for the fresh fruit shown on the chart because of the sugar added. Usually the fancier the can of fruit you buy, the heavier the sugar syrup and therefore the higher the calorie count. Dilution in canning lowers the proportion of minerals from the fresh fruits.

Fruits uncommon in most parts of the United States find a place in the fruit food value chart because some of these fruits are common food in certain regions and contain unusual combinations of wealth of food value.

Fruits can't be expected to provide all you need of all the food values on which the chart rates them. Vitamin C is the only one of the values for which we go first of all to fruit. But a food that looks so good, tastes so good, and provides the fuel value of sweets in a wholesome natural form, along with one or a combination of the vital properties our bodies need, needs not apologize to the most exacting budget.

Some tips from fruit authorities in the Department of Agriculture apply to buying all perishable fruits.

First tip is to do your own shopping. Not only can you judge the points that distinguish good fruits from bad, but you can often revise your menu plans to take advantage of specially good buys you may see in the market.

Next rule in buying fruits is not to treat them rough. Some handling is necessary, such as feeling the blossom end of muskmelons and honeydews for the softness that goes with the ripe melon, but mauling costs money, for the dealer must charge high enough prices to cover the waste consumers cause.

Big fruit, says the next rule, is not necessarily the best. Sometimes it's less economical to choose the large fruits against the small. Consider your purpose for the fruit before deciding.

Be wary about decay, say the fruit experts in the Department of Agriculture. Watch out for fruit that is going bad. Sometimes you can disobey this rule in order to take advantage of low prices, if you're buying fruit for immediate use, but watch out that you don't let yourself in for so much waste that your bargain turns out to be an extravagance.

Learn differences between blemishes that mean inferiority and the surface marks that mean nothing but lower prices. With this information you can make a pinched budget buy more food value than it could otherwise by taking advantage of the low prices that always go with marred exteriors.

Low prices don't necessarily mean big values, say the experts. Unless you can depend on your judgment of the fruit, very low prices may mean danger. The idea is to find out *why* you are being offered them. If it is because of oversupply in the market they may well be bargains.

Watch containers to see that they hold full measure, that they have not been repacked loosely to cut the quantity. See that the same quality goes all the way down.

Market study comes in at this point. Some consumers find it easier than others. In New York City, for instance, they frequently get tips on plentiful supplies from the Department of Markets' daily market broadcast. In very small towns you can see the whole market at a glance. But if you live in the towns in between, you may well rely on the market news in the newspapers. Printed in fine type, often buried in the financial pages, this column may look at first glance like a foreign language. But a few readings, with perhaps an interview with some one more technically informed, will turn its terminology into very valuable information about the quantities of different foods arriving in the market and the prices they are bringing at wholesale.

How Fruits Rate in Food Value

***Excellent

**Good

*Fair

	A	B	C	G	Calcium	Iron	Fuel Value per Pound (calories)
Apples (fresh)	*	*	*	*	—	—	290
Apricots (fresh)	***		*		—	—	255
Apricots (dried)	***		**		**	***	1,260
Bananas	**	*	**	*	—	—	445
Blackberries (or dewberries)	**		*		—	**	285
Blueberries (or huckleberries)	*		*		—	**	310
Cantaloupe (see Muskmelon)							
Cherries	**		**		—	—	310
Cranberries	*	—	**	—	—	—	240
Currants (fresh)			***		—	—	275
Currants (dried) — (see Raisins)							
Dates	**	*	—	—	**	***	1,570
Figs (fresh)	*	*	*	*	**	—	395
Figs (cured)	*	*	—	*	***	***	1,435
Gooseberries			***		—	—	215
Grapefruit	—	*	***	*	—	—	200
Grapes	*	*	*	—	—	—	355
Guava	**	*	***	*	—	—	355
Lemons	*		***		—	—	200
Limes			***		**	—	240
Mangoes	***	*	***	**	—	—	335
Muskmelon	**	*	***	*	—	—	125
Oranges	*	**	***	*	—	—	230
Papayas	***	*	***	*	—	—	195
Peaches (fresh) { Yellow	***		**		—	—	230
{ White	*						
Peaches (dried) { Yellow	***		***		**	***	1,325
{ White							
Pears (fresh)	—	*	*	**	—	—	315
Pears (dried)		**	*	**	**	**	1,460
Persimmons (Japanese)		—	*		—	—	395
Pineapples	*	**	**	*	—	—	265
Plums (or fresh prunes)			*		—	—	255
Prunes (dried)	***	**	*	***	**	***	1,365
Raisins (including so-called dried currants)	*	—	—	*	**	***	1,480
Raspberries			***		—	** { Red	305
Strawberries			***		—	Black	375
Tangerines			***		—	—	185
Watermelons	*	*	*	*	—	—	225
							140

When you use the above fruit chart compare values pound for pound.

Dried fruit is rated on its concentrated *dry form*; diluted with water, as it is usually used, the rating would be correspondingly lower. Values are for fruit processed with *sulphur dioxide*. This treatment tends to preserve *Vitamin C* but to destroy *Vitamin B*.

Fresh fruit values are based on the *raw fruit*.

Fruit canned with air excluded retains most of the *vitamin values* of the fresh fruit. Sugar added to canned fruit raises the *calorie count* correspondingly above the figure shown in the chart. *Calcium* and *iron* from the fresh fruit are, however, reduced by the dilution in canning.

Blank spaces on the chart mean only that no study has proved the *presence* of the property, *proved absence* of vitamin values or rating below "good" in mineral content is indicated by a *minus mark*.

FACTS FOR POTATO CONSUMERS

Two hundred years ago, it is told, when the people in a European city were threatened with a food shortage, a potato enthusiast urged his townsmen to use that vegetable for food. So great was the popular suspicion of potatoes that it was not until they were disguised in a kind of soup that the hungry of the town would accept them.

Today this once suspected vegetable has become a great national problem. Prized by rich and poor as the essential ingredient of at least one meal a day, potatoes achieved the status of the most important vegetable crop commercially produced, and one upon which a large share of our farm population depends for their own food or for their major, if not sole, source of income. These farmers want to know why they cannot make a better living out of supplying a food that is in such great demand, and why they always receive lower prices for producing more. Consumers want to know why they cannot have all the potatoes they want at cheap prices when farmers are so ready to produce them.

Posing a problem such as this is far simpler than solving it. If people were concerned solely with getting all the food and other things they need, the solution might be easier. But in this country we produce according to the rule, not of what people need, but of what can be sold. So long as that is the prevailing business rule, farmers must work by it too. Consumers cannot well expect farmers to provide all the potatoes consumers would like to have when nobody is seeing that farmers are provided with all they would like to have. Solving our potato problem, then, is finding a way to protect the farmers' income as well as providing an adequate supply of potatoes for consumers.

How much consumers spend for potatoes is a matter of concern to millions of farmers, but especially to those who count on their sale of potatoes to make up the bulk of the family income. About half of the farms of the country reported in 1934 that they had produced potatoes that year. A large number of these farms, however, produced for home consumption or to sell only small amounts to add a little supplementary cash to the family exchequer. The bulk of the potatoes which city consumers purchased in 1934 and 1935 were marketed by about one-tenth of all the farms, or some 600,000.

Champion in the quantity of potatoes produced in 1934 was Maine. Fourteen of every one hundred bushels were grown in that State. Next in importance that year came New York, with ten out of every hundred. Michigan followed with nine, Pennsylvania and Wisconsin each with eight, Idaho with six, Minnesota with five. These States produced about 60 per cent of all the potatoes grown in 1934. This percentage varies from year to year, but it is to the farmers of these seven States that city consumers look for the most important part of their supply of potatoes.

Not all the potatoes grown come to market. That is an important fact to bear in mind because prices which consumers pay and farmers receive for marketed potatoes are affected by the total production of potatoes. Some which do not reach the markets are saved for seed. Some are kept on the farm for human food. The amounts used for these purposes vary from year to year. In 1934 about a quarter of all the potatoes produced were used on the farm for food or seed. In addition to these necessary deductions from the supply, many more bushels each year fail to find their way to city grocery stores because of one kind of waste or

another. In years of big crops, millions of bushels may be left to rot in the ground or spoil in storage because the prices which farmers receive are too low to pay them to harvest their extra bushels or to ship them to market even when harvested. In the average year only 60 to 65 pounds out of every 100 pounds produced are sold or available for sale.

Eighteen months is the usual marketing period of one crop, thanks to the medley of climates and the long distance marketing organization we have in this country. Starting in December when farms in southern Florida and Texas begin shipping small amounts, the marketing season moves up and across the country with the warm weather. Other southern States join the procession to market along in March. Peak shipments of the "early crop" from some twelve southern areas in May and June. "Intermediate crop" areas then come to the rescue of potato enthusiasts, sending heaviest supplies to market in July. Chief shippers in this period are the farmers on the eastern shore of Virginia. Major potato supplies come from the "late-crop" northern States which usually produce about four times as much as the early and intermediate crop areas. Heaviest shipments from the late crop reach consumer markets each month from September until May of the following year.

Old crops of most vegetables are cleaned off the market before new crops arrive. This does not happen with potatoes. During the first half of 1936, for instance, a new crop will be competing with potatoes harvested months before, in 1935. This happens because potatoes properly matured do not have to be sold right away as do many vegetables, but can be stored for months before they are marketed. Those thin feathery-skinned "new" potatoes you find on spring markets are not mature when they are dug out of the ground. While they are coming to market, old ones, thicker skinned, less watery, more mealy, are making the trip, too, but from warehouses or farmers' bins. "Old" potatoes were mature when harvested and stored from the previous summer's crop, to be sent to market when needed.

Ever since this vegetable, a native of central South America, was first grown in northern countries, experimenters have been busy at work developing new varieties. Today there are hundreds, each one prospering best under certain conditions. To consumers who count their food values one variety is interchangeable with another. Nor is it certain that there is much to distinguish the food value of "new" potatoes from "old" ones. Both old and new are good in the hundred ways we serve potatoes, but the old ones have the edge for baking and mashing because they are more mealy.

Chief constituent of potatoes is water. The average spud is close to four-fifths water. Substantial food values, nevertheless, come in this relatively cheap food packet, and one suggestion the nutrition experts give in a low-cost food guide is to cook each day in the week. Rich in starch, they rate high as an energy and body-building food. While sweet potatoes are richer in vitamins in general, the white potato contains enough vitamin C to be important because of the quantities most of us eat.

Consumers' ultimate goal for all foods is a supply big enough so that every one can have a liberal diet, and not just during one year but continuously year after year. Not even in prosperous days have we approached that goal. How fast we build toward that ideal standard depends not alone on the cost of foods, or on the amount consumers have to spend for them, or on how intelligently we select our foods for a balanced diet on a liberal level, but also on whether farmers are receiving sufficient returns to keep on producing the quantities of food desired.

Nutritionists have drawn patterns for the liberal diet. They have measured the vitamins, minerals, carbohydrates, proteins, and other nutrients necessary to make up such a diet. They have suggested assortments of foods which will provide such nutrients. But when it comes to measuring the quantity of one particular food which should be available if all consumers were to have a liberal diet, they cannot set any rigid figure. How many potatoes we should have on any idealistic standard, therefore, may vary within wide limits.

What we can measure, at least approximately, is the quantity of potatoes which is ordinarily available for market. Every year farmers report to the Department of Agriculture on January 1 how many bushels of the previous year's crop they have sold and how many are still on their hands unsold. The total of these two

figures does not represent the amounts which consumers actually buy, since between the grower and the consumer there is an unknown amount of waste, but it is the nearest approach we can make to an estimate of consumption.

Average supply of potatoes available for market during the years 1925 through 1929 — relatively flush years for consumers — came to about 145 pounds. In the years 1929 through 1933, when consumers' capacity to buy was on the toboggan, the average was about the same. Compared with 15 years ago, we are now consuming slightly fewer potatoes.

These averages cover up one of the most important facts about supplies — that there are wide variations between different years. In 1922, for instance, when production was greater than in any of the past 15 years, there were available for market close to 180 pounds per person. Only three years later, production was smaller than in any of these fifteen years and supplies per person averaged only 130 pounds.

Supplies of potatoes make these wide swings up and down, and so do prices which farmers receive and consumers pay. In reward for producing supplies far above average in 1922 farmers received about 69 cents a bushel for the potatoes they sold, while in 1925 when supplies were below average, they got \$1.66 per bushel, almost a dollar more.

See-saws of large supplies and low farm prices followed by small supplies and high farm prices raise serious problems for consumers who look toward the day when every one will have a liberal diet. They raise problems, too, for farmers, working within our system of earning a living by producing according to what will sell and not according to what people need.

Balancing the see-saw so that consumers are assured an adequate and stable supply, and farmers a fair price, is easier imagined than put into practice. How many potatoes consumers get in a year and at what price are influenced by many different things, some of them controllable, some not.

When farmers decide how many acres they are going to plant to potatoes, for instance, they are influenced by the prices which they received for their last year's crop. To some extent, prices received for their crop two years before also influence farmers' plans for new plantings. If those prices were good, the chances are that farmers will be disposed to plant more acres of potatoes — hoping that those good prices will continue and that the farm family exchequer will be swelled by returns from a larger crop. If potato prices were poor, farmers are apt to plant fewer acres.

Weather, farmers' capricious partner, sometimes comes in to disturb the best laid plans. How many potatoes we get depends about as much on the yield per acre as on the number of acres farmers plant. Weather has much to do with the yield. The kind and amount of fertilizer used is important, too. For instance, the same number of acres were planted in 1919 and 1920, but there was an increase of close to 22 bushels per acre in the latter year, with the result that in 1920 production was 72 million bushels greater.

If it were possible to stabilize the number of acres planted to potatoes, the highly variable yield per acre would remain uncontrollable. There can be no assurance, therefore, that total production can be stabilized.

Prices which consumers must pay for potatoes depend not only on how many potatoes are produced but also on consumers' purchasing power. Consumers' ability to buy a certain quantity of potatoes, in turn, depends on many things: the family income, the cost of other commodities, the family's liking for potatoes as compared with other foods, and so on. To standardize or stabilize all these important links clearly is impossible.

DRIED BEANS FOR ECONOMY

Humble possessor of more food virtues than any other vegetable, the lowly dried bean rolls out of 1935's food stage in quantities a fifth greater than last year, to make its bid for consumer favor.

To consumers in pursuit of variety on meatless days, this is front-page news, for the high carbohydrate and protein content of beans makes them a good energy and body-building food. They count, too, as a good source of iron, calcium, and Vitamin B. While their protein is not "complete" enough to depend on without other proteins — such as in meat, milk, and eggs — beans have more of

this nutrient than any other vegetable. Cheapest of all vegetables all the year, this year, with such abundant supplies, they should be especially cheap.

When money is scarce, therefore, nutritionists say "look to your beans." The imaginative cook knows how to translate them into mouth-watering baked beans, into the good old-fashioned bean soup, into Hopping John, chile con carne y frijoles, bean salads and sandwiches. If she doesn't, she can find out from the Bureau of Home Economics, which has prepared recipes for each. Two basic rules only she must observe if she is to use beans economically: Cook them a long time; keep left-overs cool and use them soon or they will spoil.

How many of the many varieties of beans we can buy were brought to our shores by sailors, nobody knows. But certainly many of them came from abroad — from Chile and the Orient, from Mexico and Western Asia, from Brazil and France — and many a sailor has breakfasted, lunched, and dined on them. Easy to preserve, easy to store, big value for little money tucked into small space, beans have long been standard fare for those who embark on long and strenuous expeditions.

Best known of all the varieties is the pea, or navy, bean. Michigan leads in its production, and in 1935 provided some four and a half million bags, each bag holding 100 pounds. Most epicures of Boston baked beans look for a species of pea bean for their prized dish, and some of them swear only by the yellow-eyed species. Michigan supplies most of the raw material for canned pork and beans, too. Pea beans are white and small, the smallest of the more commonly used varieties.

Another important center of production of pea beans is western New York State, whose crop of these, kidney beans, and a few other varieties in 1935 ran about one million bags.

Close relative, in appearance, to the pea bean is the "Great Northern" or white bean, which comes from Idaho, Montana, Wyoming, and Nebraska. Not good for canning, because they mush too much, these white beans are excellent for home consumption. Supplies in 1935 came to around one and a half million bags. Each white bean looks about twice the size of the little pea bean, but is somewhat flatter.

Limas, even if "babies," come larger than any of the other white beans. One of the earliest records of their appearance in this country is by way of one Captain John Harris, U.S.N., who secured the seed in Lima, Peru, in 1824 and brought it back to this country to grow on his farm in New York. Later limas were cultivated generally in eastern States. Now California is the most important single producer. Limas sometimes go by the name "butter beans."

Pansy-faced, with its dainty oval of black around the eye, or germ, of the bean, the blackeye bean (or cowpea) has a distinctive appearance easy to remember. California produces about 95 per cent of commercial production of the blackeyes in this country. Most important consumers of these beans, which came to us from the Orient, are the Negroes.

Pinto beans add still more of a decorative touch to the bean family. They are of a pinkish cream color, mottled with brown. Colorado and New Mexico are major producers of this bean which is especially prized by the Mexican population as well as by other southern consumers. It is only occasionally found in northern shops. Bean production in the pinto area in 1935 was approximately two million bags.

Delicately tinted "pinks" are honestly named. They are small, bigger than pea beans but sometimes not quite as large as white beans. Mexican people in the Southwest prefer them to the white varieties. Some canners have been known to use pinks as substitutes for the red kidney bean in making chili con carne. California is the major producer in this country of this variety which came originally from South America and Mexico.

Mahogany colored kidney beans, bigger than pinks, are quickly spotted by most consumers. They are a product particularly of western New York State, though grown in other areas, and are especially popular in New England regions.

Many other variations of this important seed — each with its distinctive coloring and shape — are grown in different sections of the country. These seven — pea, white, lima, blackeye, pinto, pink, and kidney beans — head the list in quantity of production.

Thirty thousand farmers produce most of the beans commercially sold. For about two-thirds of this number, beans are the farmer's main source of income. In May the northern farmer will plant his beans, by machine, down long straight rows, two and a half feet apart. Three or four times during the season he will cultivate the field. From late August until sometime in October is harvest time. With a sled machine, which has knives on each side to cut under the surface soil, he will drive down along the rows. If he can, he will do the cutting in the early morning or in the evening when the plants are damp so that the beans will not shell out of their pods. Ordinarily the plants are hand bunched, and left piled up in shocks or stacks to dry. When dry they are hauled from the field to a thresher which knocks the beans from the pod. Cast-off pods and straw are used for feed.

After threshing, beans must be cleaned and recleaned to make them ready for market. This is usually done by commission men and dealers at central shipping points. There the beans are usually run through a series of machines. First they are thoroughly screened to remove stones, broken beans, bits of stem and pods and other matter. In some areas beans are hand-picked in addition. This is a more common practice in New York, Michigan, and in the Great Northern area. There may be a second screening by machine in other areas to make sure all foreign matter is removed. Finishing off is done by polishing the beans. Some develop a high polish, some a dull one, depending on the conditions under which they were grown and harvested.

Consumers cannot buy dried beans by quality grades, but practically all of them are bought by dealers on Federal Government standards or other comparable standards. Government grades are U. S. No. 1, into which class about 80 per cent of the beans fall; U. S. No. 2, which covers about 15 per cent; U. S. No. 3, and Unclassified accounting for the remaining 5 per cent. Unclassified grade beans may be used for feed and never reach the retail market. Cannery usually will buy only beans of the top grade, and in some instances they demand only the hand-picked product.

Tentative consumer standards for canned dry beans — with or without tomato sauce, with or without pork — have been worked up by the Bureau of Agricultural Economics of the U. S. Department of Agriculture. It now remains for consumers to demand the inclusion of the proper grade legends on labels. Insist on buying canned pork and beans and other canned fruits and vegetables bearing truthful statements of grade.

Top year for bean farmers came in 1929 when the total farm value reached \$79,000,000, for 12,240,000 hundred-pound bags. The price per bag, \$6.77, was 50 cents less than 1928's all-record price, but because 1929's crop was larger and consumers' pocketbooks were still bulgy, total returns were more than \$10,000,000 greater.

Since 1929, the farm price per bag of beans has touched lows not before recorded. By 1932, it had reached \$1.63 as against 1928's price of \$7.27, and bean farmers took in a total of only \$17,000,000. In 1933, the farm price had picked up to \$2.71, still lower than any pre-depression figure. Total returns came to \$33,383,000. In 1934, the average farm price had reached \$3.46 and total farm value \$35,159,000.

Not once since 1928 has the production of beans amounted to less than 10 million bags. In only two of the ten years preceding 1929 was there a 10-million-bag crop. Yet prices which farmers could earn for these bountiful crops in depression and recovery years have been a fraction of those they received in pre-depression years. In 1935, with a bigger crop than any since 1930 — experts expected it to total 13 million bags — the estimated farm price did not even touch its 1934 level.

Record of prices consumers paid for dried beans during the past two years has included limas, blackeyed peas (or beans), and navy beans. Previous to that, prices on navy beans only were recorded. Trend of average retail prices of navy beans follows the route of the average farm price for all dried beans. 1929 was the peak year when a pound of navy beans cost consumers an average of 14 cents. Lowest prices came in 1932 when the average had dropped to 5.1 cents. In 1935 navy beans sold around 6 cents a pound, blackeyes at a little over 8 cents, and limas for about 10 cents.

One boost for bean farmers came in 1933 when the Federal Surplus Relief Corporation purchased 5 million pounds to distribute to families on relief. Again

in 1934 a purchase was made, this time of 1,875,000 pounds which were sent to relief families in Puerto Rico. These purchases served the double purpose of helping to increase farm prices and of providing a nourishing food for families unable to buy beans at any price. Under the A. A. A. there has been no production control or marketing-agreement program for bean farmers. Marketing agreements were proposed in 1934, but when the drought cut down supplies of some types of beans, the proposals were abandoned.

GREEN TONICS

Spring tonic used to be as much of an annual affair as taking down the storm doors, or watching for the first crocuses. Scientists now have taught us that a proper diet for a well person requires no supporting tonic at any special season.

Asparagus is one of the many green vegetables which do a part of the old-time tonic's job. Greeks had words of praise for its medicinal properties three thousand years ago. And so had Elizabethan Englishmen, two and a half thousand years later. Now in 1935 nutrition specialists classify asparagus as a "good" source of iron and a "fair" source of calcium. They tell us, too, that fresh green asparagus is high in Vitamin A and a good source of Vitamin B if properly cooked. Reducing diet addicts can really turn loose on this vegetable — if they can do without the butter — for asparagus scores among the lowest of all vegetables on carbohydrates with only 3 per cent.

Sulphur and molasses may still be trickling down millions of throats these bright spring mornings (we have no information on that consumption), but we can say plenty about the way consumers are taking their "grass."

Growers produced for market 5,406,000 crates of asparagus in 1934. Crates usually hold a dozen two-pound bunches. That was more than 129½ million pounds of asparagus — over 3½ times as much as was marketed in 1918. Since 1918 more than fifty thousand additional acres of land have been given over to growing this delectable vegetable. Consumers wanted it and were willing to pay for it.

Prices to growers went up steadily the first few years. From an average of \$2.22 a crate — about 18½ cents a bunch — in 1918 the price rose to \$4.29 — around 36 cents a bunch — in 1923. Top prices went to New York growers who got \$5.50 that year. In the rising tide of prosperity consumers paid whatever they had to. Eager growers planted more and more. Thousands of new acres began bearing. Prices fell. By 1928 growers' prices had dropped to \$2.45 per crate. Along with the tumble of all other prices, asparagus fell and kept falling until in 1933 growers received only \$1.26 per crate. In one section they got only 63 cents per crate that year.

California produces more than half of all the asparagus in this country for both canning and marketing. Many growers are dependent on this one product to bring in all the money they and their families have to live on for a year. The asparagus crop is produced rapidly — once the beds have become established — and the "grass" is so perishable it must be handled with care and speed. In their eagerness to realize on the crop, growers rush their product to market. This often results in glutting the market and sending their returns down.

Last year asparagus growers and shippers got together and drew up a marketing agreement to steady the flow of supplies to market. This agreement provides for a committee of growers and shippers to decide, in the interests of all concerned, how many carloads shall be shipped at a time. It keeps in touch with market conditions and releases only the amount which the market can absorb. If more than this amount is cut the additional quantity, instead of being sent to market where it would upset prices, is sold to canners.

Although the agreement was only in effect the latter part of the 1934 season — too late to have much steadying effect on growers' prices — Californian growers made more money than they did in 1933, and prices to consumers were lower. The agreement was renewed for 1935.

Asparagus season starts in March, California has the market all to itself that month. Then, in April, shipments from Georgia and South Carolina begin to appear and California disposes of the rest of her crop within the State — both as fresh and for canning. Practically all of our canned asparagus comes from Cali-

fornia. Until recently only the white variety was canned but now green can be had in cans, too.

Late-producing States — Delaware, North Carolina, Maryland, New Jersey, Pennsylvania, and New York get their supply to market in May and June. These States, together with California, account for the greater part of the whole crop. Florida — that fertile source of so many of our early fruits and vegetables — is not suited to asparagus. Winters must be cold enough to check the growth of the plant and give the roots a dormant period.

Standards for fresh asparagus are so lacking in uniformity as between States that consumers can get little help from them. When you buy California "Extra Fancy" you are supposed to get from forty-three to sixty-seven stalks in a bunch. But if you buy New Jersey "Extra Fancy" six weeks later, you will get thirty or less stalks to the bunch. The same thing is true of terms like Colossal, Giant, Jumbo, Extra Select. They mean different things in different regions.

Uniform standards and grades have been worked out by the Bureau of Agricultural Economics of the Department of Agriculture. Any shipper can use them but so far few do. To be graded U. S. No. 1 among other things the stalks must be fresh, well trimmed, undamaged, and not less than eight-sixteenths inch in diameter. They must be fairly straight, with the green color covering not less than two-thirds of the stalk. U. S. Grade No. 2 along with other requirements must have stalks not less than five-sixteenths inch in diameter with the green covering at least half the length of the stalk.

Popular varieties of asparagus are the Washingtons — Mary and Martha — developed by the Department of Agriculture about 15 years ago. They are green, sturdy, and resistant to rust, a disease which had been the despair of asparagus growers for decades.

Most consumers have discovered that crooked stalks of asparagus are inconvenient to cook and serve, but had you noticed that they are also tough? The crookedness is caused by injuries to the young skin . . . by insects, wind, or harvesters' knives. The skin hardens in the injured place.

If you are one of the lucky consumers who can have asparagus beds all their own, the Bureau of Plant Industry of the Department of Agriculture can give you valuable advice on varieties and cultivation.

POINTERS TO COTTON DRESS VALUES

Stocking up for the summer on cotton clothes leads to three financial considerations: How much you spend, what you get for it, and why.

Only you can know what your total outlay should be, but information can help with the other two questions.

New studies of the Textile Division of the Bureau of Home Economics in the Department of Agriculture throw light on the painful question "When is a bargain not a bargain?"

Consumers can learn the answer to this question more safely and surely in the matter of buying cotton clothes than in the case of clothes made from textiles other than cotton. For cotton, according to the Bureau of Home Economics, is easiest of all fabrics to judge for quality. That puts consumers in a lucky spot this year, with so much to choose from in gay cool clothes of an easily judged fabric.

First tip from the Bureau is to be sure you know what you want from the dress you buy — get clear in your own mind whether you are buying the dress to help you make a swishy entrance at a party or to stand the gaff of contact with office desk and washing machine alternately repeated all summer long.

First thing every woman asks of any dress she buys is that it shall be becoming to her. That attribute is not intangible as it sounds, since if a dress is to stay becoming very long it must have very definite, tangible points which consumers can look for.

Danger lies in looking for the quality of becomingness by itself. If you don't watch out for each of the other points combined in the total effect, you may find becomingness a fleeting thing.

Pointers to cotton-dress value are strength and purity of fabric, color-fastness, nonshrinkability, style, fit, and workmanship.

All points affect becomingness. Color obviously does. If the dress is not color-fast — fast to both sun and washing — it may exactly suit your skin and hair the week you buy it, and swear at them the next. If a dress shrinks into a different shape the first time it's washed, it can make a different person of you. Style and fit and the way a dress is made and trimmed may seem questions of personal taste alone, but look into the matter further and you'll find that there are very definite good and bad points to cut and lines of a dress — things that make a big difference in the way it looks on you after it is washed and ironed.

After deciding the purpose of the dress you are looking for, the next problem is the shop to buy it in. The Bureau of Home Economics recommends going to a shop that takes responsibility for the quality of the merchandise it sells. What you can demand in a cotton dress varies with the type of dress you buy and what you pay for it, but within a certain range you can expect certain things of clothes, and the shop should be responsible for seeing to it that you get them.

Fabric comes next on the study list for consumers. Even in a sheer dress you want a material that is well woven, one that will keep its shape and stand up under laundering.

Sizing may fool an unwary consumer on this point of fabric construction. Cheese-cloth can be dressed up to look like organdy — until it's washed. To separate the dress from its dressing, here is one trick: Rub a piece of it between your fingers. Sometimes if it is heavily sized the telltale particles of white dust will come out, and the weave will look more open where you've rubbed it. But other times you may run into a piece of goods made by the modern manufacturing methods that make it possible to put sizing in the material so that nothing but washing may remove it. Textile experts are hoping for a label on such a fabric as organdy, for instance, that would read "Permanent Finish."

Once sizing is eliminated from the problem, a good firm weave of well-twisted yarn wears best. Knotty effects mean knotty problems in ironing. That band-box look can be achieved easier and oftener in summer with clothes that leave the iron smooth as new. And a loose weave with some heavy threads and some fine ones will neither launder nor wear so well as a plain, honest-looking weave.

Shrinking information comes on labels sometimes nowadays. Look first for that. "Completely shrunk" or "will not shrink" are safest right now. You can expect that dresses with those labels will fit just as well after washing as before.

"Pre-shrunk" is still none too definite, since standards have not been set for its meaning. Maybe it will shrink more and maybe less. But still it is a better label than none at all. A dress that has been shrunk first will surely shrink less than the same dress unshrunk. And manufacturers who give any definite information at all are more dependable than the ones who give none or vague generalities that are worse than none. Trade-marked shrinking processes can be a safeguard if you try them out. Finding them honest guarantees, be loyal to them in your purchases of all the things they label.

"Fast color" on a label may mean only fast to washing. "Color fast to sun and washing" is more definite. Some labels go even further into detail, which is all to the good.

Failing to find a label to guide you, you must depend on the store's responsibility. In a dependable shop, the salespeople know where they can safely make promises, and the store backs them up when they do.

Fabric points like weave, sizing, color-fastness, and shrinkage are fundamental in buying all cotton, whether it be material by the yard or material made up into any kind of garment. But where ready-made wash-dresses come into the picture, those points are only the beginning. Wise consumers keep as keen an eye open for washable styles as for washable fabrics.

One trick is to imagine yourself at the ironing board. Figure out whether it would be easy or hard to make that particular cut and line take on the bandbox look.

Bad breaks for the laundress lie in fancy puff sleeves, necklines Shirred or smocked; pleated ruffles; and rippling inserts cut on the bias.

Good breaks are flatness about the neck and shoulders and pockets; sleeves either straight or flared; insets cut crosswise of the goods; skirts with gores or pleats barred at the top, marked so as to simplify ironing; and trimming that is just as sturdy as the dress.

Most emphatic rule of the Bureau of Home Economics is "Try on the dress carefully before you buy it." Picking a dress from a pile on the counter and guessing its size from a casual wrap around your waist is just asking for trouble. Almost as bad is the epidemic habit of trying on one dress over another. A real fitting will show where the dress does not fit you, and show whether the cut has been skimped. This is especially important in buying low-priced clothes, for a skimped cut may make a bargain into a mistake. Dresses are likely to soften with wear, and the first place to give way is the place where there is strain.

Seams take the strain, and looking at them often gives you a complete answer to the question "When is a bargain not a bargain?" The first point to examine about seams is their width. Some dresses have wide enough seams so that they do not give under strain, and, if they are wide enough to be let out, the dress rates two or three notches higher on that point. Examine the whole length of the seam, for some seams taper off to nothing in spots.

Type counts in seams, too. Different kinds are right for different materials. French seams necessarily correct for sheer, easily fraying materials such as voile, are all wrong on heavy fabrics which don't ravel, like poplin, because they make the dress too bulky to fit well. On such unraveling material, mere "pinking" is an adequate seam finish.

Hems point significantly to value. The first fold of the hem is better machine-stitched with the second fold basted up ready for hand-stitching, rather than the whole hem machine stitched in the first place.

Best stitching is close and even, promising more permanence and better looks than long, uneven chain stitching.

Pocket corners without benefit of reinforcing have ruined many a good dress with their rips. See that all pockets are stitched at the corners, whether it's done before you buy the dress or after you get it home.

Buttonholes are pitfalls for unwary consumers. In easily fraying materials the best choice is a style without buttonholes. In any case, well-made buttonholes mean expensive workmanship for which we must expect to pay.

Trimmings must face laundering along with the dress. Check buttons and buckles to see if they can take it. Some have a label saying "Guaranteed Washable." Wooden ones often fade and break. Celluloid can't stand contact with a hot iron. Watch out for metal parts that lurk, covered and uncovered, on many dresses nowadays, ready to rust at the first touch of dampness. Covered buttons show another fault when the fabric pulls out. Painted tin buttons chip and rust, and buttons made of mirrors look snappy but bring bad luck in breaking. Belts should at least be cleanable, if not washable. Beware of combinations of unwashable leather with dress fabrics that should be washed.

PACK AWAY YOUR WINTER WOOLENS

Moths, like every one else, have their special tastes and distastes. Knowing their likes — and especially their dislikes — can mean the difference between serving them well while your wardrobe takes the consequences, and vice-versa.

Warm weather is the first item on the list of things that make moths comfortable. That's why cold storage is one of the sure measures used for commercial care of valuable rugs and furs. That's why springtime is precaution time. In homes whose indoor climate is equable the whole year round, every month is open season for moths. But the biggest moth months are from May to July and during September and October.

Dark seclusion is the next factor in a moth's happiness. The moths you see flirting with danger around the candles are not the villains of the piece. The real guilty parties lurk in dark corners or where the light is dim. Actually even they are not the ones who do the dirty work. They merely select the quiet dark spot and lay their eggs where their minute worm larvæ can hatch in the midst of undisturbed abundance.

Diet which moths go in for is wool, fur, hair, feathers, and everything made from these animal products. Remember that this list includes the bristles in a shaving brush, the felts in the piano, upholstered furniture, and the hairs of the family cat and dog. The less processed — the closer to the natural state — are the materials, the better moths like them. In regular dyed woolen fabrics they show their most avid appetite for soiled places.

These three moth predilections taken into consideration, the wise consumer draws the conclusion that winter clothes, lying idle in dark closets during the spring, summer, and early fall are just asking for replacement. But depriving moths of their ideal set-up is not enough to guarantee that your woolens survive for another winter's wear. Complete moth control calls for constructive measures.

Vigilance is the first suggestion from entomologists in the Department of Agriculture to consumers who would conserve their wools and furs. There is no known way to mothproof things once and for all time.

Cleanliness is the best safeguard. Moths are not likely to be a problem in clothes that are thoroughly brushed every two weeks, or rugs and carpets that are electric-vacuumed.

Rule for preparation for the big spring wool-retirement calls for washing or dry-cleaning everything you can. Items that can't be squeezed into the dry-cleaning and laundry budget can at least get a thorough sunning and brushing and beating on the clothesline to remove any eggs that may have found a nest there.

Tight packaging must follow immediately with no margin for danger. Gummed tape can seal the paper package, the cardboard hat box, the hole around the hanger in patent clothes bags, and make the closing of a trunk or closet moth-tight. For sure safety the package can include some of a tested insecticide.

Smells do not kill moths, nor even discourage them. Tests in the Department of Agriculture show that even the most deadly of the moth-killing chemicals do not repel moths when the fumes are not strong enough to kill them. The only way to make the vapor effective is to keep enough of it corralled in a tight container — package, box, trunk, or closet.

Killing chemicals recommended for use are naphthalene, paradichlorobenzene, and gum camphor. One pound of one of these chemicals spread in folds of tissue paper through the layers of clothing will protect a trunk full of clothes. Three or four pounds sprinkled on shelves and floor will protect a whole closetful if the door is sealed tight. Protection lasts only as long as the crystals or flakes or balls are present in sufficient quantity, for it is their evaporation that makes the gas that kills the moths.

Garment bags are as useful as they are tight, but only for keeping moths out, once the contents are free of them. Fancy treatments can make the bags smell queer but cannot kill the destructive moth larvæ. Paper bags thoroughly sealed, the tiniest openings closed, will serve to keep outside moths outside.

Cedar linings in closets as we usually see them are not enough to protect clothes. The fragrance of cedar alone does not kill moths. To be really effective, a cedar closet must be tightly built with red heart wood and closed by doors that clamp shut on felt or rubber gaskets. Cedar chests are recommended for storage, partly because they are usually of tighter construction than ordinary trunks, and partly because if they are thickly enough lined and kept closed the emanation from the cedar is strong enough to kill the newly hatched larvæ of clothes moths. Since it is not equal to the job on grown moths, the experts stipulate the regular cleaning, brushing and beating prelude to storage. The ordinary "cedarized" boxes and bags cannot be depended upon.

Kerosene pyrethrum sprays, sold in most drug stores under trade names, are effective for killing moths in any stage of their development if the spray actually comes in contact with the moth. Professional exterminators with power sprays can make their coverage quite complete, but sprays applied with the ordinary hand sprayer cannot be forced into many of the cracks, beneath carpeting, or behind baseboards where some of the insects are in hiding. Floor cracks filled with lint are quite impervious to hand sprays and protect the insects burrowing beneath.

Worthless prescriptions for moth control include dustings of allspice, angelica root, pyrethrum stems, air-slaked lime, powdered sulphur, quassia chips, borax, colocynth pulp, eucalyptus leaves, white helebore, sodium bicarbonate, salt, lead carbonate, lead oxide; dashes of cayenne pepper, black pepper; tobacco extracts containing nicotine; sprayings of formaldehyde, 1 to 10; red cedar leaves or lavender flowers scattered in the clothing.

Gadgets sold to hand as moth-insurance in ordinary open-and-shut closets cannot do the trick.

Moth-proofing solutions now on the market cannot make a garment immune to moths permanently or absolutely. Among the better solutions are those containing fluorides and rotenone. If used with thoroughness, they go some distance along the way to this goal. Those made of arsenic are not recommended by the Department of Agriculture.

Fumigation by methods of professional exterminators will kill moths. For this and other latest complete information on the subject write for the Department of Agriculture Bulletin No. 1353 "Clothes Moths and Their Control," for sale for 5 cents by the Superintendent of Documents, Washington.

HOBBLING ON THE HOUSING PROGRAM

An Authority points out that the Reason There has been no Building Boom in low-cost Housing is that there can be no Such Thing as a Really low-cost House without Revamping of the Industry.

Those most in need of decent houses cannot afford to build them. There has been more building this year than at any time since 1931 and yet the total number of new residential units built in this year's "boom" will not exceed 75,000, while to meet our immediate needs of replacing those actually unfit for human habitation we should build 1,000,000 houses. The truth is that we are not able to build new dwellings for more than the upper, high income, one-fourth of our population. In the final analysis houses can only be built as cheaply as our construction industry can build them regardless of whether it is done by private capital or by Government; the only difference being that in the latter case low-cost housing can be supplied at the expense of heavy subsidies — a less satisfactory expedient.

The difficulty here lies in the fact that, so far as the construction of dwellings is concerned, we do not have anything that very much resembles an industry. We have instead a multiplicity of small operators and a multiplicity of unrelated operations. We have a system, if it might be called that, which is wasteful in the very character of its organization and which has grown numb through traditionalism.

And what is the character of that organization?

1. Complicated craft organizations as applied to both laborers and employers.
2. Perpetuation of archaic craft methods.
3. Waste of material due to existing methods of fabrication and site.
4. Inappropriate use of materials and appliances.
5. Lack of skill in planning both land and buildings.
6. High cost of materials and their distribution.
7. Lack of reasonable assurance in market forecasting.
8. Seasonal character of employment.
9. Restrictive provisions of local building ordinances.

These characteristics do not seem readily susceptible to correction, and as we all know, there has been little concerted effort expended in that direction.

The cost of building materials and the total costs of building did not go down as much during the depression as the costs of other things. Moreover, when prices began to rise, building-material prices rose faster and farther than the others. Fundamentally, construction by private enterprise is undertaken only when there are fair prospects of profitable rental or sale in the current market. Similarly, banks and building loan associations must be governed by the prospects, for even though the funds be available, and even though the Government guarantee the mortgage, the loaning agency cannot assume the risk if building costs are out of line with the market.

In such times it is the customary thing to begin a drive against wages. It is such an easy and obvious method of attack. Wages in the building trades are out of balance with wages generally and therefore must be reduced, the argument runs. But the present level of building-trades wages was obtained after years of struggle for some protection against the irregularity of employment. Even in so-called "normal years," because of the seasonal factor in the industry, building-trades employment is more uncertain than with almost any other group of workers. In the past few years, workers have, of course, suffered with the collapse of building

activities. The daily wage rates, high as they appear, will not be given up because they represent, in a disorganized industry, the only defense of a minimum standard of living.

There is too much evidence, moreover, to discount the theory that restrictions in wages increase the volume of employment. If the approach could be from the reverse — if, in other words, continuity of employment could be assured — an adjustment in wages might be both reasonable and tolerable. High hourly wages are the result of too few hours' work. They may be appreciably lowered only by greatly increasing the amount of available work. Such assurances, dependent as they are upon other factors, the industry cannot at present give.

And yet, as producer of high costs, the present craft organization, leading directly as it does to the subcontracting system, would be hard to beat. The result is inevitably an unnecessary number of laborers on the job and an unnecessary multiplication of fees upon fees. The result is also the prevention of the efficiency attainable in the integrated type of organization found in the industries which make so many of the gadgets and things which we may or may not need, but which we can afford to buy. And furthermore, the result is to retard industrial progress by raising jurisdictional disputes upon the introduction of every new method or material. Closely interwoven with this horizontal craft organization and its effect upon efficiency and progress is the restraint which is placed upon any new method or device that threatens to diminish the number of hours of labor required to produce a given amount of work. The only answer here, as with the other, is the assurance of greater continuity and greater amount of work. Restrictive draft practices and the jealous perpetuation of archaic methods reflect the fear of unemployment. They can be successfully eliminated only with the removal of that fear. The so-called "construction industry" as it stands today has no very effective answer to such a challenge.

The waste of material in construction dwellings is notorious. The average contractor will allow about 10% of his cost to cover the item of waste. This means, of course, that out of ten houses built there is wasted approximately the quantity for an eleventh house. If there is added to this the cost of transporting and handling this amount of waste material from the source of production to the job, the toll that the consumer must pay in added cost and which the industry must pay in restricted market becomes obvious.

The high cost and waste of material are further increased by the excessive cost of management. Each building is erected by a number of contractors and subcontractors, each of whom maintains the overhead expense of a separate organization. In bidding, each contractor figures the cost of materials and adds the above-mentioned 10% for waste, calculates his labor cost and overhead, and adds a percentage of the total for profit. All of the sub-sub bids, and the sub-contractors' bids plus the work to be done by the general contractor with his own forces, plus his overhead, his calculations for waste and error and a percentage of the total for profits, results in pyramiding of percentages in the price quoted the buyer.

Today there are more than 1,600 building codes in the United States, many of which vary widely as to construction requirements. To appraise the difficulties created by this confusing situation would require months of patient investigation. In the numerous cases where codes prescribe detailed specifications for all phases of construction, they are long since obsolete and materially hamper architects and engineers in their designing to use modern materials and to meet new conditions. The American Standards Association has recently organized a building code committee which at last gives hope of transforming into action the years of talk about securing more rational and economical standards for building construction and basing them, wherever possible, upon performance requirements.

In addition to the high costs and inefficiencies of management, labor, and material, we must consider those of the credit structure as well. Under our system of supplying home-building credit the costs are excessive. These costs, when enhanced by the speculative builder's costs, due to risk of doing business and his measure of profit, result in prices of which more than half are made up of financing charges. The very basis of the first and second short-term mortgage system is false; the buyer signs and the lender accepts a mortgage payable in full in two or three years and at the time of the transaction neither party expects to

carry out the contract. The buyer expects to pay the interest on both the first and second mortgages and curtail the second mortgage over a period of years. When it is paid off he expects to curtail the first at each successive renewal until it, too, is paid off. Likewise the lender expects to renew the mortgages from time to time or sell them to some one else who will, should he want the money for other purposes.

There are 24,000,000 dwelling places in the country of which, variously estimated, 40% to 60% are mortgaged. It is little wonder that the real estate mortgage market collapsed when lenders insisted upon their mortgages being paid in accordance with the terms of the contract instead of renewing them as both parties had been in the habit of doing in the past and expected to do in the future.

We all know of the part played by the Government in halting this downward spiral and forestalling disaster to our entire credit structure. The Home Owners' Loan Corporation refinanced mortgages and relieved distressed mortgages. This helped to take the pressure from home-financing institutions, and in addition several hundred millions of dollars went directly to closed institutions to release their frozen assets.

It became apparent that, in addition to the effort to halt excessive deflation, a permanent organization of the home-financing system should be set up. This began with the Federal Home Loan Bank Act of June, 1932. The Federal Home Loan Banks constitute a reserve system for the Nation's principal home-financing institutions, namely, building-loan associations, savings banks, and life-insurance companies. It provides these institutions with a reserve which protects them against emergency pressure and from which they may borrow to make new loans should their own resources be inadequate to meet the demands.

In the form of the Federal Savings and Loan Insurance Corporation, authorized by the National Housing Act of June 27, 1934, we have another kind of protection and stability for the mortgage structure of the country. The primary purpose of this mortgage insurance is to prevent the withdrawal of savings from thrift home-financing institutions and to increase the flow of funds to them for home financing. The Federal Housing Administration, Resettlement Administration, and other agencies are carrying out other parts of the Government's program for the reorganization of the home-financing system and the creation of decent housing.

The purchase of a home or the rental of a dwelling over a period of years constitutes a formidable share of the expenditures of consumers, and for many years past has taken an increasing share of income. For that reason, if for no other, the cost of housing and the elements of cost in a low-cost housing program require the understanding of consumers. The generally accepted ratio of home cost to income for wage earners in this country is two to one; only under special circumstances is it considered wise to spend more than two and one-half times the annual income for a home. Likewise, it is believed that the wage earner cannot safely allow rent to absorb more than 20% of his income.

Upon these bases we can calculate the outside limits of acceptable cost of housing for wage earners when we consider figures on annual average earnings which have been estimated as follows: \$1,162 in 1919; \$1,315 in 1929; and \$1,096 in 1932. Two times the 1932 income would be \$2,192, and two and a half times the 1929, or highest yearly rate of income, would be \$3,287. From this it appears that 75% of our families (those not now able to buy adequate housing) cannot afford, either as owners or renters, to live in houses costing more than \$3,000, and that, since the figures used are average incomes, probably half of this number must live in houses costing \$2,000 at most.

But what of the future of an industry in which there remain so many obstacles to rational development and orderly supply of the nation's needs? In 1934 the average cost of one-family residential units for which permits were issued was \$3,827, this figure being exclusive of the cost of land, profits of the builder, and financing the project. Can our present type of business organization in the construction industry bring these costs of \$3,827 down to the \$2,000-\$3,000 limit imposed on 75% of American incomes?

Reviewing again the nine characteristics of the organization of this industry, it looks as though the first eight can be largely eliminated by factory fabrication in mass production. Some 50 industrial concerns, we are told, are attempting to

perfect prefabricated homes. Thus far these houses sell for \$5,000 to \$10,000; the offering of houses in this price class merely increases the competition in the luxury field. Three-fourths of the market would remain untapped, and the volume necessary for low-cost mass production would not be realized. But when the technique of manufacture and assembly is perfected and the \$2,000 to \$3,000 market is tapped, mass rehousing will start in this country.

The consumer who does not care for the modern architecture which lends itself so beautifully to prefabrication, and who can afford the luxury (?), may still have his home built by the "cut and fix it" method of hand fabrication by which some of our other articles of luxury are made. This one-quarter of the industry, both producers and consumers, may not change. But the other three-quarters, who must have houses functionally designed for healthful, convenient living and at prices which are commensurate with those of their transportation, clothes, entertainment, and the other things which they now buy and enjoy, must have machine-mass production of homes.

That phrase "mass production of homes" does not need to imply houses standardized in appearance. Even if it did, it would be hard to create anything more objectionable than the endless blocks of row brick houses of many of our cities which were built by the traditional hand-laid-brick-upon-brick method. Mass production of homes does mean the use of standardized wall sections, roof sections, and the like. But from a comparatively limited number of such standardized parts and sizes an architect can secure a wide variety of pleasing combinations. Actually his freedom to exercise initiative of design may be enhanced by the opportunity offered for a complete break from precedent and tradition.

While the space available barely suffices for this brief outline of the problem, it does seem proper to conclude that the consumer has much to gain if home building at last gets into step with the machine age.

TREND OF LIVING COSTS

The study and investigation of circumstances affecting the prices of commodities which are necessities of life is included in the duties of the division and, in this connection, the monthly computation and publication of the cost of living index has been continued. This information is supplied to governmental, labor and civic groups and organizations, schools, colleges, libraries, business and the public at large throughout the United States and Canada.

The value of the information is indicated by the large number of requests received for additional information to be used in settlement of wage and salary disputes, cost of living studies in other States, and for general public information regarding living costs, purchasing power and standards.

Retail prices of a certain group of staple commodities are obtained monthly from retail dealers throughout the Commonwealth and used in the compilation of the index, based on prices of the same group of commodities and services in 1913.

The combined cost of living index increased during the year from 133.9 in December, 1934, to 138.6 in December, 1935, the high point of the year being 139.7 in September. Comparative figures by months during the last two years follow:

Combined Cost of Living Index, 1913=100

<i>Month</i>	<i>1934</i>	<i>1935</i>	<i>Month</i>	<i>1934</i>	<i>1935</i>
January . . .	128.8	135.8	July . . .	132.9	137.4
February . . .	130.3	137.4	August . . .	133.6	138.7
March . . .	131.1	138.0	September . . .	135.0	139.7
April . . .	130.8	138.0	October . . .	135.0	139.1
May . . .	131.6	137.8	November . . .	134.7	139.3
June . . .	131.9	137.0	December . . .	133.9	138.6

It will be noted that the index in each month is over 3% higher than for the same month in the preceding year; in some instances it is more than 5% higher than for the corresponding month.

The index numbers expressed in dollars signify that \$138.60 was required in December, 1935, to purchase the same quantity of necessities that cost \$133.90 in December, 1934.

Family income determines purchasing power, and living standards depend upon the purchasing power of the family organization; therefore, increased prices without corresponding increases in earnings reduces purchasing power and over a period of any great length directly affects the standard of living of the individual group. The average family, however, has endeavored through sacrifice to maintain, in so far as possible, the high standards achieved during the period of high incomes, which was said to be the highest living standard ever to exist in the history of the world.

Business as well as the family organization has suffered due to low incomes, as bills contracted prior to depression times could not be met by individuals whose incomes have been barely sufficient to meet necessary living expenses. This condition has resulted in many families losing furniture, furnishings and other goods purchased on the partial payment plan. The Division wishes at this time to congratulate the many dealers who have been most lenient with customers in many cases far beyond what could be expected with the large number of outstanding credits on which no amount of payments could be expected.

Increased incomes to meet higher living costs and create demand for new goods must be achieved before a return of normal business conditions can be expected.

ELEMENTS OF THE BUDGET

CLOTHING

Expenditures for clothing represent 12.8% of the division's budget, divided about equally between men's and women's clothing sections. This index is based largely on the so-called sampling method or on the price of staple goods entering into the manufacture of wearing apparel, as wide variations in style and types of tailoring affect the prices of garments which are made from the same or similar materials.

During the past year the index for combined clothing dropped from 148.9 in December, 1934, to 146.5 in December, 1935, the high point of the year being 149.9 in July. Lower prices of shoes, hats, hosiery, underwear and cotton fabrics were largely responsible for the lower index.

Massachusetts until recent years was undoubtedly the greatest industrial center of the world in the manufacture of textiles and boots and shoes. But the large increase of importations of foreign goods, coupled with Southern competition in textiles, has greatly reduced our payroll and the number employed in these industries.

Information compiled by the Division of Statistics, Massachusetts Department of Labor and Industries, indicates that in the period between 1924 and 1934 the amount of wages paid in the textile, boot and shoe and allied industries decreased 48½% and the number of wage earners employed dropped about 33% from 250,170 to 167,909. The number of reporting industries fell off 478 in number or about 30% in this period. In the cotton goods industry alone the number of wage earners dropped from 89,095 in 1924 to 49,297 in 1934.

The shift of the cotton textile industry from North to South is indicated in the report of the Special Cabinet Committee appointed by the President in 1935 to obtain an accurate picture of the economic status of the industry. This report indicates that in the New England States the number of spindles in active use decreased from 17,100,000 in 1923 to 8,500,000 in 1933, or about one-half. During the same period an increase of about 10% was noted in the active spindles of Southern factories. The Southern States in 1933 produced about five-sixths of the total volume of woven cotton products, with all of New England producing only one-sixth of the total.

This Committee in considering the problems of employment, earnings and working conditions urged the industry to continue voluntary efforts to maintain labor standards provided by the code and proposed further study to determine specific improvements in labor standards, including the question of wage differentials between Northern and Southern workers.

Massachusetts has the factories and trained employees to produce textiles and shoes in quantity, providing the element of low wage competition in the form of foreign goods and from Southern factories can be eliminated or controlled.

Food

Food is the largest single item of expense of the average family and is given a weight of 37.6% of the total budget computed by the division. Expenditures vary, however, depending upon the size of the family, age, and type of employment of the individual members.

Massachusetts, being principally an industrial rather than an agricultural State, must depend largely upon other sections of the country for the great bulk of her food supply. In spite of this handicap, a comparison of food costs in November issued by the U. S. Department of Labor showed Boston holds a favorable position in the fifty-one cities for which the comparison was made. Only six cities showed a lower index based on the 1923-1925 average. Some of the principal cities with their indicated food index are given below:

Index of the Average Retail Prices of all Foods, 1923-1925 = 100

	November, 1935		November, 1935
Minneapolis	86.4	Chicago	80.8
New Haven	85.8	Portland, Me.	80.3
Washington, D. C.	85.7	Indianapolis	79.9
St. Louis	85.5	Providence	79.6
Cincinnati	84.7	Cleveland	79.1
Philadelphia	83.9	Jacksonville	78.8
New York	83.6	Atlanta	78.7
San Francisco	83.0	BOSTON	78.3
Milwaukee	82.5	Butte	78.2
Manchester	82.3	Little Rock	78.1
Charleston	82.0	Richmond	78.1
Omaha	81.5	Mobile	76.4
Seattle	80.9	Los Angeles	75.5
Detroit	80.8	Birmingham	71.8

Due to the remote sources of much of our food supply, cold storage plays an important part in the food distribution for Massachusetts at prices comparable with other parts of the country. This important function is under the supervision of the Massachusetts Department of Public Health and monthly statements are issued with regard to the foods held in storage. Speculation in food commodities and manipulation of prices through the use of warehouses are reduced to a minimum through this publication of available supply.

Comparative stocks of certain food in storage December 1 are given below:

<i>Commodity</i>	<i>1934</i>	<i>1935</i>
Beef (frozen, lbs.)	2,457,995	2,267,596
Pork " "	4,650,614	1,325,346
Lamb and Mutton (frozen, lbs.)	362,849	323,641
Poultry	5,015,543	4,905,358
Meats (miscellaneous, lbs.)	3,831,388	1,274,686
Total Meats	16,318,389	10,096,629
Butter (lbs.)	2,809,181	3,860,824
Eggs (dozen)	4,339,548	3,721,440

It will be noted that the total storage meat supply diminished nearly six million pounds from the 1934 stocks, and that of eggs, over 600,000 dozen. Butter, however, shows an increase of over a million pounds. The total supply of fish in storage on December 15, 1935, was 26,783,888 pounds, or over two million pounds more than on the same date of 1934.

During 1935, the food index advanced from 110.9 in December, 1934, to 123.9 in December, 1935, an increase of 13 points or 11.7%. It is particularly noticeable that farm products, especially those coming within the scope of the A.A.A., continued to increase in price. The meat index advanced from 116.1 in December,

1934, to 144.2 in December, 1935, while higher prices were also noted for eggs, milk, butter, cheese, lard, sugar, flour and potatoes.

MEAT

The forecast of meat production for 1936 is about the same as the 1935 supply, although an improved quality is predicted due to ample harvest of feed crops with relation to the number of livestock on hand:

The meat packing industry is seeking continuously to find a wider market for its product. It learned that beauty and daintiness appeal to the eye of the housewife and, by adding these qualities to meat, it was found that more of it could be sold. That is why at the present time much of our ham, bacon, dried beef and other similar meat products are sold in neatly wrapped packages. Consumers prefer to receive their meat in this manner. In satisfying these preferences the industry has been able to sell more meat at better prices and in turn to pay the livestock producer a higher price for livestock.

Packaged meat and other such foods can be displayed more attractively in retail meat stores and it is through such displays that more meat is sold. A long sales talk is not needed to convince the housewives that they should buy meat products. The beauty of such displays attracts the housewives, and the products sell themselves.

Retail stores must be located conveniently so that housewives can make their purchases in a relatively short time. Where one store might serve a locality twenty years ago, several may be needed today.

Two or three times as many people go into meat stores on Saturday as go into them on any other day of the week. This means, of course, that the retailer must have a store that is large enough to handle the crowd on Saturday, and he must keep enough help on hand to satisfy the customers when the rush comes. His store is larger, therefore, than his weekly sales would require if the housewives could spread their purchases more evenly all the days of the week. As a matter of fact, housewives have enlarged their demands to such an extent that there are more people working in retail meat stores than there are working in packing plants, and the payrolls in the retail stores are nearly half again as large as payrolls in the meat packing business.

Even the producers of livestock have had occasion to come directly into contact with some of the new demands which the housewife has developed in the last few years. For instance, not so many years ago livestock producers fed their steers for three or four years and then marketed them at weights which were sometimes as much as a ton. Consumers in those days demanded that their meat be produced from such animals, but as the years have progressed, the demand has changed, and now the housewife wants her beef steaks and pot roasts to be from lighter and younger meat producing animals. Instead of holding the steers for the length of time which they were formerly held on the farm, producers are finishing their livestock more quickly and marketing them at younger ages.

This, of course, means that more cattle must be raised to supply the demand, and it is the producer's job, as well as the meat packer's, to alter production to coincide with the wishes of the housewives. By so doing, the livestock producer broadens his market and as a consequence sells more livestock.

The producer of livestock and the meat packer are serving the one great boss of the food industries — the American housewife. If the housewife did not demand meat, there would not be a meat and livestock industry as it exists today. It is true that the preferences of the housewife add to the expense of doing business, but also it is true that by satisfying these preferences more meat is sold than otherwise would be. As long as the housewife wants additional services, they will be extended to her and, as a result, the demand for meat will be improved and livestock will become more salable. It is obvious that the housewives' preferences have added to the cost of the meat. However, this does not mean that the producer receives less for his livestock, although the added service given to the housewives may mean that the producer receives a somewhat smaller percentage of the consumer's dollar than he did at the time when bacon was sold in slabs and lard was sold in bulk.

The additional agencies naturally must receive compensation for their services

in order that they continue their work. It is therefore impossible for the producer to receive the same percentage of the consumer meat dollar that he did when he performed all of the separate services.

How much, then, does the livestock producer receive from the amount which the consumer pays for the finished product?

Under normal conditions, the farmer's share of the housewife's meat dollar is somewhere around 55% — a little over half. On the average, for a recent ten-year period, including several very abnormal years, it was still about 50%.

A recent study reveals that of the 21½¢ paid out by the housewife for the typical pound of meat in this ten-year period, approximately 5½¢ was retained by the retailer to meet his rent, payroll, and other disbursements. The processor or packer received 3¼¢, of which he paid out 1½¢ in wages and salaries, four-fifths of a cent for supplies, power, and fuel, ½¢ for other operating expenses, a fifth of a cent each for interest charges and depreciation.

Wholesaling and delivery, sometimes performed by the packer and sometimes by other agencies, involved an expense of approximately one cent. Finally, the transportation and selling of the livestock enroute from farm to market accounted for nine-tenths of a cent — thus leaving the farmer approximately 11¢ of the original 21½¢ that had been paid by the consumer for the average pound of meat.

So our picture has changed since the day of those early pioneers. Since the time when there were only a few livestock producers the industry has developed to the point where there are now several million, and since the time when there were only a few head of livestock, numbers have increased and now there are many millions. With all the specialization of activity which has developed, with the many other units which have entered into the meat and livestock industry, enabling the producer to reach a market otherwise wholly inaccessible, these folks along the line divide less than half of the consumer meat dollar, and pass the major portion back to the farm.

It is estimated that about two and one-quarter billion dollars, including hog benefits, will be paid for meat animals during the coming crop year.

In the twelve-year period, 1921–1932, the average percentage of total income of the United States, paid to producers of meat animals, was 3.82. The high point was 4.09 per cent in 1924, and the low was 3.52 per cent in 1932.

Other important information regarding meat products is contained in the main body of the report.

FUEL AND LIGHT

Due to climatic conditions it is necessary that all Massachusetts families make provision for a supply of some type of fuel for use during our severe Winter months.

While the consumer is given his choice of several selective fuels for home heating, the prices charged for many of them are based on prices charged for anthracite, which is still the dominating fuel used in Massachusetts, rather than on the cost of production.

In most other parts of the country the use of low-priced bituminous coal and shorter distances to sources of supply of competing fuels, such as oil, further enhances our cost of living handicaps and places an additional burden upon our consumers.

During the later months of 1935, the retail prices charged for anthracite were generally about 50 cents per ton less than for the same period of 1934, but the index for this commodity was still over 70% above the 1913 level, compared with 25% for food, 47% for clothing, 42% for shelter, and 50% for combined fuel and light. The fuel and light index dropped during the year from 156.5 in January to 150.5 in November, due to lower prices of kerosene, gas and electricity, as well as anthracite.

Deliveries of fuels by Massachusetts coal dealers during the first eight months of 1935 indicate an increase of 67,000 tons of anthracite, 7,000 tons of coke, and 6,000,000 gallons of oil. These figures do not include coke delivered by coke and gas companies or oil delivered direct by major oil companies, or through pedlars, such information being obtained only once each year, as of April 1st.

Comparative figures on this survey to determine the relative importance of various fuels are given below for the 1933–1934 and 1934–1935 coal year:

<i>Fuel</i>	1933-1934	1934-1935
Anthracite { Domestic sizes	2,938,000 net tons	2,638,000 net tons
{ Buckwheat	172,000 " "	191,000 " "
Coke	1,318,000 " "	1,020,000 " "
Bituminous Coal	800,000 " "	850,000 " "
Briquets	90,000 " "	62,000 " "
Other Manufactured Fuel	52,000 " "	15,000 " "
Oil	400,000,000 gallons	500,000,000 gallons
Gas Installations		
Central Heating Plants	4,497	6,433
Gas (estimated)	2,248,982,000 cu. ft.	2,853,078,000 cu. ft.

Coke delivered by gas and coke companies decreased 113,000 net tons from the 1933-1934 figure, while deliveries of this fuel by coal dealers fell off 186,000 net tons from the previous year.

Oil used for heating purposes increased approximately 100,000,000 gallons, much of which was due to the continued increase in the use of range oil burners.

The division has continued the compilation and distribution of information relative to fuel. Data relative to receipts, stocks, deliveries, imports, inland shipments, prices, and other allied information is supplied to local dealers and organizations, federal and State government officials, business representatives of coal producing and consuming States, chambers of commerce, and others. Such information supplied by the division is used extensively before the Interstate Commerce Commission and other federal and State commissions and committees.

SHELTER

The potential demand for new houses is apparently now greater than in the years immediately following the war when the need for additional housing facilities led to the building boom of the twenties.

It is contended that comparable data available indicates a deficit of 2,000,000 units in the country at the present time, compared to 1,500,000 in 1921.

The Bureau of Labor Statistics shows that only about one-sixth as much new housing was built between 1930 and 1935 as in the 1921-1930 period, although the increase in the number of families according to normal population trend should have been 88% of the average rate from 1920 to 1930.

If the housing slump is to be offset by new building during the next ten years, it is estimated that the average annual construction of new dwellings must reach 60,000 units above the annual construction between 1921 and 1929.

Housing officials give the following explanation of the present potential demand for new housing:

1. The widespread doubling-up of families during depression years, who will take up separate domiciles as soon as they are financially able to make the change.
2. Increased number of marriages during the next few years to offset the drop in marriage rate since 1929.
3. The desire of home owners to move to better neighborhoods with returning prosperity, and abandon houses on which few if any repairs have been made during the past few years for newer and better types of property in suburban areas.
4. Movement of population which met the depression years by returning to farms back to cities which they vacated.
5. Families who have lost property through inability to meet mortgage payments and have been forced to move to cheaper and less desirable locations will strive to either own or rent accommodations in better neighborhoods.

The Federal Government through the Home Owners' Loan Corporation furnished relief on home mortgages to the extent of three billion dollars and further assistance has been supplied by the Federal Housing Administration and Reconstruction Finance Corporation.

The importance of the building industry to recovery is shown by the fact that in normal times it provides employment for approximately 1,800,000 persons in addi-

tion to the indirect employment provided in the industries producing building materials. About 720,000 of all construction workers normally are employed on residential building.

Federal activity to promote low-cost housing was first centered in the Public Works Administration in an attempt to finance limited-dividend housing corporations but after a year of effort this method was abandoned in favor of direct Federal construction of housing.

Seven of the limited-dividend projects have been completed. All are occupied. Approximately \$11,000,000 of Federal money was used in their construction.

The program of direct Federal construction includes 48 projects on which \$130,000,000 is being spent.

The other phase of the Government program — the program for improving the home mortgage market — in the view of housing experts and governmental officials has been of fundamental value.

HOLC, the Federal Savings and Loan Associations and the Federal Home Loan Bank System have helped to make mortgage money more available. The Federal Housing Administration has stimulated building directly by its system of insuring building and modernization loans.

FHA undertakes, under certain conditions, to guarantee mortgages up to 80% of the value of house and property. Its program provides for mortgages giving the prospective builder a maximum of 20 years for the amortization of his loan, with interest, mortgage insurance and other charges totaling about 6% annually.

Many plans for stimulating residential construction have been submitted to the Government, particularly in view of the role governmental building programs have played in industrial recovery in England and other European countries.

One program which has attracted wide attention is that of the Committee for Economic Recovery. It made a special report to the President in which it suggested a program whereby it believed 7,500,000 homes would be built during the next ten years.

It was suggested that 85% of the new buildings be undertaken by private financing while the remaining 15% be undertaken by the Government in the field of low-cost housing, to provide dwellings for families earning less than \$1,000 yearly.

A federalized saving and loan system whereby funds would be made available for residential building at a maximum interest rate of 4½%, with down payments as low as 5% and 10%, and with amortization periods as high as 23 years was suggested by the committee.

It further reported that its investigations have shown that 80% of the urban and suburban homes should be built to cost not over \$6,000, and 35% should cost not more than \$3,000.

The committee states its belief that the Government should enter only the field of home building which "cannot be served by private enterprise due to the inability of the housing client to pay an economic rent sufficient to compensate private enterprise for its efforts."

Efforts of the Government further to expand its program to stimulate private building through amendment of the National Housing Act have been stymied through the inability of Federal agencies to agree on a program.

One plan which officials explain was developed by F.H.A. proposed that the Government insure loans for home construction up to 90% of the value of the property instead of up to 80%, as at present.

This plan was assailed by the H.O.L.C. on the ground that it would prove inadequate to attract private capital into the mortgage field while the Treasury attacked it as opening the way to large losses through defaults.

Another plan offered by H.O.L.C. officials proposed that the H.O.L.C. be authorized to make second-mortgage loans. Other interested agencies opposed this plan on the ground it would put the Government deeper into the mortgage field just at a time when it is trying to get out and also would restore the two-mortgage system which housing officials have been attempting to uproot.

A large number of complaints and requests for information from both landlords and tenants continued to flood the office of the division. These cases concern vacate notices, rent increases, refusal or neglect to supply services, poor condition of stoves, heating apparatus, etc., inability to collect rents, mortgage foreclosure

information, and many varied types of disputes which arise between landlords and tenants.

The division has attempted to supply helpful advice in all cases received and has through suggestion effected amicable agreements between the parties concerned in cases which otherwise might lead to serious trouble and, ultimately, court action.

During the year a large number of foreclosure cases were prevented by action on the part of the division. Numerous applications for assistance from the Home Owners Loan Corporation which had received unfavorable action were re-opened at the request of the division, and a great many were allowed after a review of the case and suggestions for compromise settlements which were accepted. In some instances it was necessary for the property owner to raise small amounts of money, which was accomplished through the advice offered by the division. In most cases in which the division interceded the banks concerned were found most co-operative in arriving at agreements for the owner to retain his property.

SUNDRIES

A miscellaneous assortment of goods and services necessary for the operation of the home are grouped under the sundries section of the budget and given a weight of 22.8% of the total budget expenditures.

The list includes carfare, medical care, drugs, toilet articles, etc.; furniture and furnishings; recreation, theatres, etc.; reading material, stationery and telephone; organization dues and insurance, ice, tobacco; candy, soft drinks, etc.; and contributions to church and charity.

The budget does not contain an allowance for savings other than a limited amount of insurance; however, deposits in savings departments of Massachusetts banks and trust companies indicate that those employed are thrifty as these deposits continued to increase during 1935. Deposits on October 31, 1935, amounted to \$2,648,573,261, compared to \$2,618,975,771 on the same date of 1934.

The amount of the money income available for conveniences, advancement, entertainment, and general advancement of living conditions is generally regarded as the measure of the standard of living. When incomes are large, a larger amount is available for luxuries and semi-luxuries, and it is only to be expected that the additional amount will be expended for family betterment. When income is low, however, expenditures for necessities leave little for use for the non-essentials which make for more enjoyable living conditions.

PETROLEUM PRODUCTS

Crude Oil. — Production of crude oil in 1935 amounted to 993,942,000 barrels, or an increase of 86,000,000 barrels over the 1934 year. Total demand, however, exceeded the total new supply by 22,448,000 barrels, the total stock at the end of the year being 541,700,000 barrels, or an estimated sufficient supply for 178 days.

The use of fuel oil in Massachusetts is covered in more detail in the fuel and light section of the report.

Gasoline. — The gasoline bill to the Massachusetts consumer, as indicated by gallonage sold during 1935, was close to \$100,000,000, about one-quarter of which was returned to the Commonwealth and the Federal Government in the form of a gasoline tax.

Keen competition resulting in cut-price wars, while a matter of much concern to some motorists, resulted in shopping on the part of the buyer, and was undoubtedly partially responsible for the few increases in posted prices for this product during the year. Comparatively few complaints regarding prices were received by the division, it being apparently impossible to maintain any attempted increase due to the willingness of many service station operators to accept a lower margin with the prospect of increased business.

Price differentials between certain adjoining communities receiving their supply from different distributing depots were the cause of some complaints but satisfactory adjustments were made where this was possible without disrupting the price schedule to the disadvantage of other communities.

Owners of independent stations situated in localities where cut-price wars existed complained to the division that their margins would not allow them to make a profit at existing prices. Investigation by the division disclosed the fact that leased and sometimes independent stations operated on various margins of

profit allowed by the companies. This is particularly true in cases where price wars exist. Many forms of concessions are given some leased stations, such as cancellation of rent, payment of light bills, and lower tank wagon prices, apparently for them to be able to meet price conditions in their areas. Investigators of the division were told that in many instances the price wars were started by independent owners, while many independents claim that price wars were started to force the vacating or selling of certain desirable stations by placing too heavy a competitive burden for the independent to meet. The division feels that while it is desirable for the motorists to obtain gasoline at the best possible prices, a fair and reasonable margin should be maintained in order that the investment of the individual be protected.

A study of price structure, advertising and cause of price wars is contemplated by the division and an attempt to determine a fair margin for retail distribution to assure a profit. A commodity as important as gasoline, with the property investments involved, should not be subject to the whims and poor business policies of certain individuals and unless conditions are corrected by the industry itself, it may be necessary to ask for legislation that will protect both the consumer and the seller.

The division believes that a pamphlet, issued by the consumers' division of the National Recovery Administration, entitled "What is Gasoline" is of sufficient interest and value to quote in this report.

"What is Gasoline? — An Inquiry into the Nature of What the Car Owner Buys, Including Fuel for His Engine, and Fuel for His Imagination"

"Gasoline was for centuries a mere unknown potentiality in oil. It is today a very synthetic product compounded of a little petroleum and a lot of technology.

"Crude petroleum, probably at one time microscopic marine and plant life which decomposed under peculiar geologic circumstances, is a multiple hydrogen and carbon combination differing not only from field to field but within a single well.

"In the world of nature there is no such thing as gasoline. Even natural gasoline was without name and properties until discovery was made of its uses. Practically, a natural resource may be said not even to exist until man has fathomed its utility. While knowledge is absent, there can be no technology, and until technology has appeared an object of nature has no more than physical properties. Until a little while ago petroleum was only a curious mineral oil; Marco Polo suggested that it might possibly be of some human use in anointing mangy camels; its earliest use in this country was as a patent medicine.

"Petroleum very early demonstrated its chameleon capacity for change when man experimented with it in the early nineteenth century as a possible substitute for whale oil in illuminating houses. A little effort resulted in the elimination of smell and smoke, and petroleum started on its distinguished history in the form of kerosene. Somewhat later gas came to be the means of illumination and in its turn made way for electricity, and the market for kerosene was gone. By that time petroleum had burst outside all bounds, not in company with bustles and the oil lamp, but as going power for the automobile. Gasoline was in the saddle now and rendered faithful service to its new master. In its easy amiability to change, it allowed for the continuous development of the automobile engine. Moreover, from the crude petroleum came another automobile necessity — lubricating oil — which too showed a marvelous capacity for adaptability to the job in hand. Today a barrel of crude oil yields products vastly different from what our fathers secured. Instead of a little kerosene and a good deal of waste, it now provides approximately the following:

	Per Cent
Gasoline	44
Fuel Oil	36
Kerosene	6
Lubricants	3
Miscellaneous: Coke, asphalt, wax, etc.	8
Loss	3

The Technical Process. — “An inquiry into the price of gasoline cannot assume that gasoline is identical. At a single moment it may perhaps be a homogeneous thing; over a period of years it varies greatly. Gasoline is the child of the internal-combustion engine which has heaped one improvement upon another. As the motor, so the motor fuel; and gasoline was not slow to do likewise.

“In its most elementary form the process of petroleum refining consists in heating the crude oil to its boiling point and allowing the vapors to pass through condensing pipes.

“The first gasoline was secured by skimming off the small amount of raw gasoline near the top — ‘straight run,’ as it is called. As demand increased and a cheaper automobile required a cheaper gasoline, experiments were made to get two gallons of gasoline where one furnished before. This was achieved by breaking down gas oil and converting it into gasoline. Now over 40% of the gasoline that is produced comes from ‘cracking’ — a great increase in the supply from each barrel of crude.

“The ‘cracking’ process takes advantage of the peculiar susceptibility of oil to change with the application of heat. Each petroleum product is its individual self due to its boiling point and with further additions of heat can be broken down and given a new identity. So complete is this true that an entire barrel of crude oil, by sufficient applications of heat, can be converted into gasoline. At the present such a procedure is too costly but it suggests the temporary character of any stabilization in the industry which becomes unsettled with every advance in technology.

The Octane Race. — “Gasoline was not only doubled in quantity, it was vastly improved in quality. Given its adaptability to change by variations in the application of heat, it was inevitable that the motor engine and its fuel would make technological progress together. Actually, engineers of the General Motors Corporation worked closely with technicians in the laboratories of the large oil companies, and a superior engine and gasoline evolved together.

“The newer engines called for greater fuel power and gasoline showed its versatility. By developments in refinery technology, gasoline reached a higher octane rating than the straight run; moreover, additions of tetraethyl lead were found to ‘step up’ the octane rating considerably. The extreme differences between octane gasolines were smoothed out by a judicious mixing of the too-high with a too-low and a satisfactory average suitable to the engine was secured. The oil industry was in a fair way to meet the demand of the most powerful engines. The octane measurement of gasoline moved from forty through the fifty’s and sixty’s and reached and passed the seventy’s. The octane race was on.

“But an impasse was soon reached. The automobile engine found itself sacrificing practical utility to the power race as an engine was developed which did not require an excessive octane gasoline. A halt was called, but not before gasoline reached a high octane point which revolutionized the structure of the market.

The Gasoline Market

“The large companies which were able to afford the utilization of the latest technological improvements found the octane rating of their gasoline had risen to the sixty’s; the addition of tetraethyl lead shot it beyond the seventy’s. The independent refiners, unable to purchase such expensive equipment and handicapped by their inability to secure the patented lead process, were producing straight-run gasoline and getting it in the sixty’s. Various grades based upon octane rating came upon the market and converted its former simplicity to a singular complexity.

“The situation now is somewhat as follows:

Major Companies’ Gasoline

- “Premium, 76–80 octane
- Regular, 70 (not above)
- Third grade, 59–64.9 (largely 61–63)

Independents’ Gasoline

- “Regular, 65–68 octane
- Unbranded, individually branded, trackside, etc., 61–63 (sometimes lower, 57–59)

Price

Premium sells 2 cents above regular gasoline

Independents' regular usually same price as majors' regular, occasionally one-half cent differential

Real competition between independents' unbranded and majors' third grade, differential ranges from $2\frac{1}{2}$ to 5 cents (dependent upon area)

"These grades cannot be passed over without a short analysis. The tendency in the market, of course, is to push sales as far as possible to the higher octane gasoline because of their higher price. The consumer is informed that nothing is too good for *his* car and that if he wishes to treat it well, he should give it the highest octane gasoline. The effect of his action is simply to waste his money. Since the ordinary automobile engine is constructed for a medium or low octane gasoline, it is unresponsive to the higher octane, for which the consumer pays a differential. This predicament is now being recognized by the automobile companies who are attempting to remedy the situation without cost to the gasoline companies. The Chrysler Company is now rumored to be working on an engine which will be amenable to any octane gasoline.

"Of outstanding importance in the market is the trade name. This is capitalized by the major companies whose trade brands are familiar throughout the country. Though crude petroleum varies greatly from field to field, gasoline itself, when it comes from the refinery, is fairly uniform in quality. However, in the attempt to save transportation costs there is a rather general swapping of gasolines by the major companies behind the scenes, and the trade name under which gasoline is marketed gives an apparent uniformity to a very real chaos of source. Moreover, since the major companies normally supply about 80% of their needs, they are dependent upon the various assortments of gasoline sold by the independents for the remainder of their supply. This is mixed with their own gasoline, branded and sold under their trade name. The consumer should be wary of paying any significant differential in price, because the pump has a familiar trade-mark blazoned conspicuously on it.

"Nor is this confusion confined solely to the branded gasoline market. The independent dealer may purchase branded gasoline from the Standard Oil of New Jersey and sell it as unbranded gasoline. If he does this, the custom of the market allows him to sell an unbranded supposedly independent gasoline one-half cent to five cents below the regular price. Again, the independent dealers can purchase an unbranded gasoline, name it "Oshkosh Premium" and build up a local consumer acceptance for his commodity. This he will sell at the regular branded gasoline price.

"Thus a Babylonian complexity underlies the market structure of gasoline. The expert cracking plant of the major company does produce a gasoline with a slightly higher octane content than the straight run gasoline coming from the independent's refinery. In a vague way this has been reflected in the market where branded gasoline sells for a price higher than the unbranded.

"The major's gasoline has a fair amount of uniformity, but the practice of swapping and exchange which occurs in the quick adjustment of local markets, and the miscellaneous activities of the independent, gives each gallon of gasoline sold under a trade name a tantalizing uncertainty.

The Magic Ethyl

"The invention of the tetraethyl lead process, a patent of the Ethyl Gasoline Corporation, has changed the properties of the combustible and had a disturbing influence on the gasoline price structure. Since the addition of small amounts of this fluid raises the octane content of gasoline considerably, to the upper seventy's, the process was first exploited by licensing it to the large companies who mixed it with their own gasoline and marketed it as "premium gasoline" at a price differential. At the present time it sells for 2 cents above the "regular" gasoline, whatever its price. During the Washington price war last summer, premium gasoline sold for 14 cents; on September 1, when suspicions had been cowed if not removed, and the war ended, the price was 18.8 cents, again 2 cents above the "regular" price.

"This price situation has been due to the present inability to equal this tetraethyl

lead composition. Users of ethyl are licensed by the Ethyl Gasoline Corporation (the stock of the Ethyl Gasoline Corporation is divided between the General Motors Corporation and the Standard Oil of New Jersey) and can secure this license only on the proviso that the differential be maintained. Refiners and jobbers who purchase Ethyl Gasoline for resale are compelled to submit lists of their customers, and cut-raters are banished summarily from their books or the license is revoked.

"Independents have found it virtually impossible to secure tetraethyl lead, and this inability is one of their greatest sources of complaint. The disadvantage is not that they have been kept out of the premium gasoline market, which has come to have decreasing sales importance and for the most part is a problem to the large companies who installed their "premium gasoline" pumps so recklessly. Their real anxiety lies in the new use to which ethyl is being put. It has now become an almost universal practice for the major companies, Shell and Sun Oil are exceptions, to add tetraethyl lead to step up the octane content of all their gasoline. Without the advantage of lead, the independents have been unable to compete so effectively with the majors in the octane race. Moreover, lead as an octane raiser has now such a hold on the public mind that there is a general tendency to demand leaded gasoline and to eschew the independents' as inferior because lead is absent. In many cases this is true but some independents have been able to raise their octane count even without tetraethyl lead, but they nevertheless suffer the market disadvantage.

"The price paid by the licensees of Esso has gone down progressively in recent years. This rate does not seem excessive although, of course, profits in the petroleum industry turn on fractions of a cent. There are no data available on costs. Since the financial reports of the Ethyl Gasoline Corporation are included in the consolidated statements of earnings of the General Motors Corporation and the Standard Oil of New Jersey, no record of profits was immediately obtainable.

"Prior to 1934 the Ethyl Corporation was selling its patented product at a flat rate per cubic centimeter plus a royalty on the gallonage. The price change since 1931 was:

Sales price ethyl fluid

	Per cubic centimeter Lead Content	Gallonage Charge
	Cents	Cents
"1931 — Beginning of year	\$0.35	\$0.5
No change during year	—	—
"1932 — Beginning of year	*	*
During year . . . . .	.35	.425
"1933 — Beginning of year . . . .	.35	.425
During year . . . . .	.35	.2
"1934 — Beginning of year . . . .	.33	None

* Same as above.

"The reason for the change to a flat rate solely, beginning January 7, 1934, is thus explained in a letter of the Ethyl Gasoline Corporation on August 17, 1934.

"There is no way by which this combination price for the material plus gallonage charge can be reconciled to a flat unit price, for the reason that the oil companies used anywhere from 0.9 cubic centimeters up to 3 cubic centimeters of tetraethyl lead per gallon treatment and this use varied not only with each company but practically in every mix that was made, to obtain the final result of a uniform anti-knock value in the gasoline that was so treated.

Table 1. — Cost of Living Index Numbers by Elements

1919

ELEMENTS	January	February	March	April	May	June	July	August	September	October	November	December
Food	180.1	174.2	174.1	176.6	179.7	181.0	182.2	187.4	182.0	184.7	188.9	189.1
Clothing	221.5	223.5	223.8	235.3	235.8	235.8	235.8	237.2	240.9	256.3	271.6	272.3
Shelter	118.4	118.4	118.4	115.5	115.5	115.5	115.5	115.5	115.5	129.6	129.6	129.6
Fuel and light	143.1	135.1	135.1	135.1	140.0	144.3	145.8	150.1	150.1	150.7	152.9	153.5
Sundries	155.0	155.0	155.0	156.0	158.0	160.0	163.0	165.0	167.0	172.0	175.0	175.0
Combined	167.5	164.7	164.7	167.0	169.1	170.3	171.5	174.6	173.1	179.9	184.5	184.7

1920

Food	200.9	195.5	198.9	198.2	207.9	207.9	216.9	205.1	202.5	194.7	187.2	179.6
Clothing	286.2	291.3	299.8	305.5	302.0	288.4	280.9	282.9	285.9	268.9	258.3	226.0
Shelter	131.0	131.0	131.0	133.8	134.9	139.4	139.4	142.4	147.8	147.8	150.6	151.7
Fuel and light	154.2	160.7	161.6	170.8	171.1	171.7	172.1	175.0	188.5	189.2	190.0	189.9
Sundries	175.9	175.9	175.9	183.0	183.0	185.0	185.0	185.0	188.0	190.0	192.0	192.0
Combined	192.0	190.8	193.4	196.3	200.3	199.7	202.6	198.5	200.1	194.9	191.3	183.9

1921

Food	171.5	158.6	145.1	142.1	135.3	133.5	139.5	142.0	139.9	138.7	137.2	139.4
Clothing	219.9	214.4	208.2	206.5	201.6	197.1	191.8	187.1	186.7	186.2	187.6	186.1
Shelter	151.7	151.7	153.2	156.3	159.4	159.4	159.4	159.4	161.0	161.0	161.0	161.0
Fuel and light	188.8	188.3	187.5	177.4	176.8	176.1	175.9	175.9	175.4	180.9	180.0	180.5
Sundries	192.0	190.0	190.0	188.0	188.0	185.0	183.0	183.0	180.0	180.0	180.0	178.0
Combined	179.5	172.9	166.4	164.5	161.4	159.4	160.8	161.4	160.0	159.7	159.2	159.6

Table 1. — Cost of Living Index Numbers by Elements — Continued

1922

ELEMENTS	January	February	March	April	May	June	July	August	September	October	November	December
Food	136.1	135.6	133.1	135.4	134.0	134.1	137.2	136.3	136.3	138.2	139.9	139.8
Clothing	180.1	179.2	179.9	176.5	176.1	176.5	176.1	174.9	177.6	178.4	179.1	179.4
Shelter	162.5	162.5	162.5	162.5	162.5	162.5	162.0	162.0	162.0	162.0	162.5	162.5
Fuel and light	174.9	174.9	173.7	172.8	172.8	172.7	172.0	172.9	172.9	182.6	184.5	184.8
Sundries	178.0	177.0	177.0	174.0	174.0	174.0	174.0	172.0	169.7	169.7	169.7	168.8
Combined	157.3	156.8	155.3	155.6	154.9	155.0	156.2	155.3	155.4	156.6	157.7	157.5

1923

Food	139.3	141.3	138.8	139.3	141.0	140.0	143.4	142.0	143.5	144.9	142.0	144.1
Clothing	178.0	182.2	182.8	184.0	183.2	184.1	182.1	182.2	183.4	185.9	187.0	186.1
Shelter	162.5	162.5	164.5	166.0	166.5	167.0	167.0	167.0	167.0	167.5	167.5	167.5
Fuel and light	184.8	184.2	178.2	178.6	177.5	177.4	178.2	177.0	177.7	181.6	182.1	181.7
Sundries	168.8	168.8	168.8	170.5	170.5	170.5	170.5	170.5	170.5	170.5	170.5	170.5
Combined	157.1	158.5	157.5	158.5	159.1	158.9	160.1	159.5	160.3	161.6	160.5	161.3

1924

Food	141.0	139.9	139.0	136.1	136.4	137.1	137.5	138.5	142.4	142.1	141.5	143.0
Clothing	186.8	187.4	186.0	184.9	183.3	181.6	181.4	178.8	180.6	180.1	178.4	181.2
Shelter	168.0	168.0	168.0	168.0	168.0	168.0	168.0	172.0	172.0	172.0	172.0	172.0
Fuel and light	178.4	178.6	178.8	177.1	177.0	177.2	177.5	177.4	179.6	179.3	179.5	179.5
Sundries	171.4	171.4	171.4	171.4	171.4	171.4	171.4	170.5	170.5	170.5	170.5	172.2
Combined	160.1	159.7	159.2	157.7	157.6	157.7	157.8	158.4	160.5	160.3	159.8	161.2

1925

Food	.	.	144.7	142.8	144.4	143.4	143.7	146.8	147.9	150.3	150.3	153.1	154.1	155.6
Clothing	.	.	177.9	177.6	181.6	181.2	180.8	182.3	182.1	180.7	181.1	181.5	182.1	186.6
Shelter	.	.	172.0	172.0	172.0	172.0	172.0	172.0	172.0	172.0	170.0	170.0	170.0	170.0
Fuel and light	.	.	179.9	180.0	175.6	175.7	175.7	176.6	178.5	181.2	181.2	181.2	186.4	197.4
Sundries	.	.	172.2	172.2	172.2	172.2	172.2	172.2	172.2	171.4	171.4	171.4	171.4	172.2
Combined	.	.	161.5	160.6	161.6	161.1	161.2	162.8	163.4	164.4	163.9	165.1	165.9	168.0

1926

Food	.	.	151.8	153.9	149.2	151.9	148.0	148.3	147.7	145.4	146.8	147.3	147.4	147.9
Clothing	.	.	184.5	181.7	182.3	179.2	180.3	181.2	178.6	178.7	177.0	177.7	177.5	177.5
Shelter	.	.	170.0	170.0	170.0	170.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0
Fuel and light	.	.	214.6	198.0	183.3	181.4	181.9	182.0	183.3	184.4	184.4	185.2	185.7	185.5
Sundries	.	.	172.2	172.2	172.2	172.2	170.5	170.5	169.7	169.7	169.7	170.5	171.4	171.4
Combined	.	.	167.0	166.6	163.9	164.5	162.3	162.5	161.9	160.9	161.3	161.8	162.1	162.3

1927

Food	.	.	145.9	143.7	142.1	143.4	145.7	145.5	142.8	142.2	142.6	142.1	144.6	145.0
Clothing	.	.	176.1	176.3	175.1	175.0	173.9	173.3	170.2	171.6	172.5	172.1	172.8	172.8
Shelter	.	.	168.0	166.0	166.0	166.0	166.0	166.0	166.0	165.0	165.0	165.0	165.0	165.0
Fuel and light	.	.	135.4	185.3	184.6	181.6	178.5	178.4	179.0	179.3	181.5	181.5	181.5	181.4
Sundries	.	.	171.4	171.4	171.4	170.5	170.5	170.5	170.5	170.5	169.7	169.7	170.5	170.5
Combined	.	.	161.2	160.3	159.0	159.2	159.9	159.7	158.6	158.0	158.2	158.0	159.3	159.5

1928

Food	.	.	145.4	144.2	142.2	144.6	146.1	144.6	148.6	149.3	152.7	150.0	149.0	147.6
Clothing	.	.	172.6	172.7	172.6	171.7	173.8	172.1	172.5	170.9	171.5	169.3	171.5	172.8
Shelter	.	.	165.0	165.0	165.0	165.0	165.0	165.0	165.0	163.0	163.0	163.0	163.0	163.0
Fuel and light	.	.	181.4	181.4	181.2	175.4	175.4	175.4	175.4	175.5	177.9	177.9	179.7	179.6
Sundries	.	.	170.5	169.7	169.7	168.8	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0
Combined	.	.	159.6	158.9	158.0	158.4	159.6	158.7	160.5	160.3	161.9	160.5	160.5	160.0

Table 1.—Cost of Living Index Numbers by Elements — Continued

1929

ELEMENTS	January	February	March	April	May	June	July	August	September	October	November	December
Food	148.5	146.5	147.6	147.7	149.1	148.1	151.8	154.7	153.0	152.1	149.3	148.9
Clothing	173.3	170.1	174.1	173.6	173.6	173.6	172.2	173.6	173.2	173.5	173.6	174.0
Shelter	163.0	163.0	163.0	163.0	163.0	163.0	163.0	163.0	163.0	163.0	163.0	163.0
Fuel and light	179.5	179.6	179.7	177.9	174.2	174.2	170.4	176.3	178.9	179.0	179.1	179.3
Sundries	170.0	169.2	169.2	168.9	168.9	167.9	167.7	167.7	167.7	168.4	169.2	169.2
Combined	160.5	159.0	160.0	159.8	160.2	159.6	161.1	162.5	161.9	161.7	160.7	160.6

1930

Food	146.4	145.8	141.9	142.1	141.7	139.3	137.6	136.6	137.2	137.0	132.9	130.8
Clothing	173.6	173.6	173.5	173.3	173.1	173.0	172.4	172.7	171.6	168.8	165.5	164.0
Shelter	163.0	163.0	163.0	163.0	163.0	161.0	161.0	161.0	161.0	161.0	161.0	160.5
Fuel and light	179.4	179.4	178.3	178.1	170.7	170.7	172.1	174.3	175.0	175.8	175.4	175.5
Sundries	169.2	168.1	167.2	167.2	167.0	166.9	166.5	165.7	165.7	165.3	165.6	165.0
Combined	159.4	158.9	157.0	157.1	156.4	155.0	154.2	153.7	153.9	153.4	151.2	149.9

1931

Food	128.5	121.3	120.9	118.9	115.9	115.0	115.7	117.0	117.4	115.1	111.5	107.8
Clothing	162.4	157.4	156.6	154.5	151.0	149.2	149.1	148.6	148.4	148.0	145.8	145.0
Shelter	160.5	156.0	156.0	155.0	155.0	155.0	155.0	153.0	153.0	151.0	151.0	151.0
Fuel and light	175.5	175.4	175.4	163.1	163.1	163.1	164.9	165.5	167.5	168.3	168.7	168.1
Sundries	164.2	163.8	162.2	161.3	158.8	157.5	157.5	157.0	157.0	156.6	156.0	154.6
Combined	148.6	143.9	143.3	141.5	141.1	140.2	140.5	140.4	140.7	139.3	137.5	135.7

1932

Food	.	.	105.6	102.2	100.3	98.6	96.2	93.0	98.8	90.3	90.2	97.4	95.8	94.9
Clothing	.	.	138.8	133.9	135.2	132.2	128.8	124.7	123.4	123.9	122.0	123.9	120.4	121.7
Shelter	.	.	151.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	135.0	135.0	135.0	135.0
Fuel and light	.	.	168.0	164.0	164.0	155.8	154.2	153.5	154.9	154.9	158.9	159.0	157.3	156.8
Sundries	.	.	154.6	152.9	152.9	152.9	151.2	151.2	152.9	152.9	152.9	152.9	150.1	150.1
Combined	.	.	134.0	131.6	130.8	129.3	127.5	125.8	128.5	128.5	125.2	124.7	122.7	122.8

1933

Food	.	.	91.6	87.9	86.5	86.6	89.7	92.1	100.0	102.1	103.8	104.2	103.2	101.6
Clothing	.	.	121.2	121.5	119.1	120.7	121.7	124.6	126.6	130.8	135.7	140.4	142.6	143.4
Shelter	.	.	135.0	135.0	133.0	133.0	133.0	138.0	138.0	133.0	133.0	139.0	135.0	135.0
Fuel and light	.	.	157.1	157.0	156.9	156.2	150.4	148.8	150.1	151.1	154.6	155.3	155.4	155.1
Sundries	.	.	148.8	148.8	148.8	148.8	148.8	149.0	149.0	149.4	150.4	151.1	151.1	151.1
Combined	.	.	121.2	119.8	118.5	118.9	119.7	121.0	124.3	125.7	127.4	128.8	128.7	128.2

1934

Food	.	.	100.2	103.9	105.4	105.2	106.7	107.0	110.1	112.1	114.1	113.8	112.6	110.9
Clothing	.	.	145.2	145.9	148.0	146.4	147.2	147.7	146.5	145.9	147.8	149.0	149.9	148.9
Shelter	.	.	138.0	138.0	138.0	138.0	138.0	138.0	138.0	138.0	139.0	139.0	139.0	139.0
Fuel and light	.	.	155.1	155.8	155.0	154.5	150.3	150.8	152.2	153.7	156.6	156.9	156.4	156.7
Sundries	.	.	152.2	152.2	152.2	152.2	153.9	153.9	153.9	153.6	153.6	153.6	153.6	153.5
Combined	.	.	128.8	130.3	131.1	130.8	131.6	131.9	132.9	133.6	135.0	135.0	134.7	133.9

1935

Food	.	.	116.0	120.9	122.7	124.2	123.6	121.6	121.8	124.5	126.3	124.2	125.3	123.9
Clothing	.	.	148.7	146.9	146.4	147.5	148.1	147.6	149.9	146.4	147.9	148.2	146.9	146.5
Shelter	.	.	139.0	139.0	139.0	139.0	139.0	139.0	139.0	142.0	142.0	142.0	142.0	142.0
Fuel and light	.	.	156.5	156.6	156.8	142.9	141.9	142.2	142.9	144.2	146.5	150.6	150.5	150.4
Sundries	.	.	153.5	153.5	153.3	153.3	153.3	153.3	153.3	153.3	153.3	153.3	153.3	152.7
Combined	.	.	135.8	137.4	138.0	138.0	137.8	137.0	137.4	138.7	139.7	139.1	139.3	138.6

APPENDIX II

FUEL STATISTICS

Table 1. — Anthracite Coal — Total Production, New England Receipts, Imports

					(Net Tons)		
					United States Production	New England Receipts	New England Imports
1925	.	.	.	.	63,839,000	8,280,000	224,023
1926	.	.	.	.	85,454,000	10,612,000	387,458
1927	.	.	.	.	80,647,000	9,146,000	106,157
1928	.	.	.	.	76,746,000	9,376,000	369,036
1929	.	.	.	.	76,888,000	9,040,000	483,979
1930	.	.	.	.	69,732,000	8,390,000	657,987
1931	.	.	.	.	59,667,000	7,062,000	610,648
1932	.	.	.	.	49,855,000	5,639,000	567,397
1933	.	.	.	.	49,541,000	5,252,000	430,597
1934	.	.	.	.	56,900,000	*5,972,000	477,084
1935	.	.	.	.	50,443,000	*5,404,000	558,723

* Subject to revision.

Table 2. — Bituminous Coal — Total Production, New England Receipts, Imports

					(Net Tons)		
					United States Production	New England Receipts	New England Imports
1925	.	.	.	.	520,053,000	21,313,000	35,813
1926	.	.	.	.	578,290,000	21,087,000	62,364
1927	.	.	.	.	520,684,000	22,426,000	53,096
1928	.	.	.	.	493,252,000	19,652,000	76,889
1929	.	.	.	.	526,361,000	21,311,000	50,114
1930	.	.	.	.	461,879,000	19,901,000	32,385
1931	.	.	.	.	378,241,000	17,976,000	66,728
1932	.	.	.	.	309,710,000	15,022,000	53,589
1933	.	.	.	.	333,631,000	15,984,000	103,732
1934	.	.	.	.	355,548,000	*17,006,000	35,465
1935	.	.	.	.	364,723,000	*16,228,000	—

* Subject to revision.

Table 3. — New England All-Rail Movement of Coal as shown by Number of Cars of Coal passing East through the Gateways

(Daily Average)

YEARS	ANTHRACITE				COMMERCIAL BITUMINOUS			
	Boston & Maine	Boston & Albany	New York, New Haven & Hartford	Total	Boston & Maine	Boston & Albany	New York, New Haven & Hartford	Total
1925	126	46	167	339	77	61	135	273
1926	168	57	234	459	78	68	148	294
1927	140	50	210	400	74	62	135	271
1928	137	47	245	429	68	49	108	225
1929	134	43	222	399	74	60	121	255
1930	101	47	202	350	62	51	110	223
1931	75	32	177	284	49	40	102	191
1932	77	23	142	242	47	32	84	163
1933	68	21	133	222	51	34	85	170
1934	86	25	157	268	61	35	95	191
1935	81	24	141	246	57	34	92	183

Table 4. — Deliveries of Domestic-sized Anthracite for Last Eight Coal Years — The Commonwealth of Massachusetts

(COAL YEAR, APRIL 1 TO MARCH 31)

	Net Tons
1927-1928	4,744,324
1928-1929	4,912,810
1929-1930	4,703,019
1930-1931	4,177,238
1931-1932	3,565,768
1932-1933	2,968,429
1933-1934	2,938,197
1934-1935	2,637,722
1935-1936 (8 months)	1,535,946

Population of Massachusetts, 1935 (State Census), 4,350,910.

Table 5.—*Freight Tariffs per Gross Ton and Average Retail Price per Net Ton Delivered on Domestic-sized Anthracite for Certain Representative Municipalities of Massachusetts*

CITY OR TOWN	Delaware & Hudson and Philadelphia & Reading Freight Tariffs	Average Retail Prices December 1, 1935	
		Stove	Pea
Adams	\$3.50	\$13.90	\$12.10
Brookton	4.00	13.50	11.75
Fall River	3.55	13.75	11.25
Fitchburg	4.00	15.00	13.00
Framingham	4.00	13.40	11.65
Gloucester	4.00	13.75	11.75
Greenfield	3.88	14.50	12.25
Haverhill	4.00	12.00	10.75
Holyoke	3.88	14.25	12.00
Lawrence	4.00	14.50	12.00
Leominster	4.00	14.50	13.00
Lowell	4.00	14.00	12.25
Lynn	3.65	13.50	11.50
New Bedford	3.55	13.25	11.00
Newburyport	3.75	13.50	12.00
North Adams	3.50	13.90	12.10
Northampton	3.88	14.00	11.50
Norwood	4.00	13.50	11.75
Peabody	3.65	13.50	11.50
Pittsfield	3.50	13.75	11.00
Salem	3.65	13.50	11.50
Springfield	3.75-3.88	14.25	12.00
Taunton	3.75	13.75	11.50
Westfield	3.75	14.25	12.25
Woburn	3.80	12.90	11.00
Worcester	4.00	14.65	12.50
Boston	3.65-3.80	12.50-12.90	10.50-10.90
Suburbs	3.65-3.80	12.50-12.90	10.50-10.90

Freight Tariffs from mines to tidewater:

To Port Richmond (Philadelphia) for transshipment to Boston, \$2.09 per net ton. Barge rate, about \$1 per gross ton.

To Port Reading, N. J. (New York City Harbor), for transshipment to Boston, \$2.28 per net ton. Barge rate, about 65c. per gross ton.

Table 6.—*Population, Number of Dealers and their Deliveries of Domestic-sized Anthracite for Certain Representative Municipalities of Massachusetts*

CITY OR TOWN	Population (1935)	Number of Dealers	DELIVERIES		
			1934-1935 Coal Year	1935-1936 (8 mos. of Coal Year)	†1935-1936 (8 mos. of Coal Year) Foreign Anthracite
Boston District*	1,673,032	111	994,152	588,076	126,132
Adams	12,858	5	11,458	6,265	0
Brookton	62,407	12	29,732	17,454	3,880
Fall River	117,414	9	49,895	25,294	714
Fitchburg	41,700	8	22,446	10,733	894
Gloucester	24,164	4	22,410	12,624	1,307
Greenfield	15,903	5	16,887	8,988	25
Haverhill	49,516	11	33,948	20,907	4,336
Holyoke	56,139	6	38,964	21,947	0
Lawrence	86,785	27	53,360	29,048	7,161
Leominster	21,894	7	17,211	11,472	1,536
Lowell	100,114	19	49,513	30,534	3,596
Lynn	100,909	9	72,441	45,588	23,213
New Bedford	110,022	9	94,556	51,686	0
Newburyport	14,815	5	20,280	11,912	874
North Adams	22,085	9	17,748	10,899	0
Northampton	24,525	7	32,181	16,323	0
Norwood	15,574	4	10,884	7,103	1,716
Peabody	22,082	5	8,363	6,762	983
Pittsfield	47,516	11	56,717	37,665	0
Salem	43,472	12	43,451	27,060	2,906
Springfield	149,642	14	104,675	58,809	1,385
Taunton	37,431	5	24,740	18,416	715
Westfield	18,788	5	10,978	6,979	111
Woburn	19,695	6	8,265	4,033	768
Worcester	190,471	20	107,395	60,352	2,614
City of Boston	817,713	43	638,701	385,567	85,904
Cambridge	118,075	8	46,290	20,096	1,476
Chelsea	42,673	6	19,904	9,671	4,695
Everett	47,228	4	20,407	11,291	4,581
Malden	57,277	7	17,093	10,970	2,370
Medford	61,444	4	16,471	10,013	518
Newton	66,144	5	35,332	20,760	2,917
Quincy	76,909	5	25,154	12,867	1,885
Somerville	100,773	10	56,584	35,066	9,105
Watertown	35,827	4	21,224	11,987	1,648

* All of above included in Boston District figures together with Arlington, Belmont, Brookline, Melrose, Milton, Revere, Waltham and Winthrop.

† Foreign Anthracite deliveries included in other Anthracite deliveries.

REPORT OF THE DIVISION OF OCCUPATIONAL HYGIENE

MANFRED BOWDITCH, *Director*

The close of its first fiscal year finds the Division of Occupational Hygiene an established service unit, with a record of initial accomplishment at least indicating the possibilities of future usefulness. The four technical and clerical positions have been adequately filled, the fundamental means of operation secured, a substantial beginning made in acquainting labor, industry and the public with the preventive service offered, and a not inconsiderable total of routine and special work completed. On the other hand, the year's experience has quite naturally brought fuller appreciation of some phases of the complex problem of occupational disease prevention, and there are not a few questions still to be answered before the division can be said to have achieved a satisfactory level of usefulness.

Personnel. — There have been three changes in the division's personnel. Edward C. Riley, M.Sc., formerly research assistant in ventilation at the Harvard School of Public Health, assumed the duties of engineer on April 15, replacing William H. Lehmberg, M.S., resigned. Compliance with civil service regulations required the withdrawal of Miss Grace M. Mara, senior clerk and stenographer, replaced by Miss Louise E. Burnham, August 12. Miss Evelyn Bronski was on February 18 appointed junior clerk and stenographer, a place previously unfilled.

Quarters. — The first floor and basement at 23 Joy Street, leased at the close of the last fiscal year, have been arranged to provide executive, technical and clerical offices, two laboratories, a microscope dark room, a small but extremely useful dust and fume chamber, two lavatories and some space for storage. Careful planning has rendered a total floor area of somewhat less than 1,300 square feet adequate to the division's needs.

FACILITIES AND EQUIPMENT

The technical work of the division readily divides itself into chemical and engineering services. Field and laboratory determinations of fume hazards require specialized chemical training and equipment, dust determinations and the design and evaluation of means for the control of both fumes and dusts demand knowledge in the relatively new fields of ventilation and dust suppression engineering, with the means for making a wide variety of measurements. It may be added parenthetically that the need of adequate acquaintance with the effects on the human organism of the injurious materials found in varying concentrations in our industries is common to both services. Since the greater part of the technical equipment has been acquired within the current year and there is wide and substantial interest in means and methods of occupational disease control, description in some detail seems warranted.

Chemical Facilities. — The chemical laboratory occupies two basement rooms, each equipped with gas, water and electricity. The smaller room, along two sides of which open benches have been built, contains a still for purifying water, glass blowing equipment, a small centrifuge, a one-kilowatt converter for supplying alternating current and a soapstone sink bespeaking years of service as an apartment kitchen.

The larger room has been equipped with benches containing the usual laboratory drawers and cupboards. Here the most important single unit of apparatus is the chemical balance, sensitive to one tenth of a milligram and equipped with the "chainomatic" device for rapid operation. Many analyses, involving metallic substances such as lead and mercury, require treatment of solutions with hydrogen sulfide or the evaporation of solutions containing free acid. Such operations and others causing evolution of objectionable fumes are carried out under a hood which is exhausted through a chimney into the air above the building. A gas plate is housed permanently under this hood, which may be completely closed. Beside it, under an auxiliary hood, are an electric muffle furnace capable of reaching a temperature of 2500° F. and a drying oven for more moderate temperatures.

The smaller units of apparatus include the usual flasks, crucibles, special types of burners, condensers, etc. A fractionating column, highly efficient in the separation of different components of liquid mixtures, is provided. An electric hot plate and an electric water bath are valuable for heating inflammable substances.

The work of the chemical laboratory consists primarily of two phases. The first is the examination of samples of materials used in industry for ingredients which might be injurious to the persons using them. In this work the samples furnished are ordinarily large enough to enable the regular methods of macrochemistry to be employed. An Abbé refractometer recently acquired will be invaluable in assaying many substances, especially those containing benzol. The second phase of the work consists of the analysis of atmospheric samples secured in industrial establishments. Here, since the amounts of material to work with vary from a few hundredths to a few one hundred thousandths of a gram, more delicate methods must be employed. Frequently a sensitive and accurate volumetric determination may be used, as in the case of lead (by the Fairhall method), benzol, cyanide, etc. Others, such as ammonia, may be determined colorimetrically or nephelometrically, for which work two sets of Nessler tubes and a colorimeter are available. In the case of mercury, a micrometric method involving the use of the microscope is employed.

Portable units of apparatus for the field determination of gases and vapors were designed and largely constructed by members of the staff. These may be adapted to the determination of almost any gas or vapor. The chief feature consists of a carrying case, made by lining a suitcase with plywood and making suitable alterations, and stands for glassware made of sheet aluminum. To each stand is fitted a flowmeter, especially designed to register the rate of flow desired, and an absorbing bottle or tube. For gases soluble in aqueous solutions a sintered glass bubbler containing the proper solution is used. Organic vapors such as toluol and carbon tetrachloride are absorbed on activated charcoal in weighed tubes, the increase in weight being subsequently measured. Benzol vapor is determined by the Smyth method, absorption in nitrating acid in specially constructed absorbers. A special stand is fitted with Dewar flasks for determining mercury and other vapors which are condensed out by means of liquid air or solid carbon dioxide. A more detailed description of this portable equipment is being prepared for publication.

As a source of suction small vacuum cleaner blowers, housed in "home made" carrying cases, are ordinarily used. Aspirator bottles and gas sampling tubes are, however, available for special purposes. An M. S. A. direct reading indicator has been obtained for determining carbon monoxide and two carbon monoxide detectors are available for emergency work.

While the supply of chemicals consists mainly of reagents necessary for analytical work, an attempt is being made gradually to accumulate samples of all the important industrial poisons.

The fume chamber, formerly a bath room and now made substantially gas tight by patient plugging and two coats of special paint, has a capacity of 270 cubic feet. When this is filled with a noxious gas or dust, atmospheric conditions similar to those prevailing in certain industrial operations are obtained. This is invaluable in testing protective equipment and gas or dust collecting devices.

Engineering Facilities.—The engineering laboratory equipment demands far less space than the chemical. Its principal unit is a large closet which has been made into a microscope dark room, one of the busiest places in the laboratory. Here, on a remodelled office desk, are two microscopes and the attachments necessary for determining, by either dark-field or light-field microscopy, the size and number of particles per cubic foot in samples of dust secured in industrial establishments. These methods are applicable to samples obtained by either of the two types of collection apparatus to be noted; gravimetric and microchemical analyses are also possible with impinger samples. By providing the microscope room with shelving for the division's field equipment, means have been found to house all the more valuable apparatus under conditions combining safe storage and ease of checking with ready convenience for use.

Of first importance in the engineering field work is the familiar Greenburg-Smith impinger apparatus, used in all cases calling for extensive and accurate sampling. The impinger outfit as received from the manufacturer was so cumber-

some as to materially interfere with its usefulness for efficient field work. Substitution of a universal $\frac{1}{4}$ HP drill motor for the A-c. and D-c. motors furnished and the elimination of the heavy cast-iron sub-base of the suction pump have effected a saving of 35 pounds in weight and produced a far more compact and serviceable unit. It has furthermore been found more convenient in most cases to carry a small fibre case of our own design, holding eight impinger flasks, than the larger and heavier box supplied with the original equipment. A Zeiss konimeter is available for preliminary surveys and all situations where grab samples will suffice.

Devices available for determining the magnitude and direction of air currents and the effectiveness of exhaust equipment include anemometers, kata thermometers, Pitot-static tubes and draft gages, while a sling psychrometer for determining the moisture content of the air supplies the additional information to complete the picture of atmospheric conditions. For standardizing flowmeters the laboratory is equipped with a wet gas meter, a dry gas meter, several constant flow orifices and a vacuum pump.

Two types of illuminometer are available for determining the intensity of light in work places. One incorporates a photo-electric cell which is sensitive to light and similar radiations, the other is a photometer device which compares the light with a source of known intensity. For checking the adequacy of visual protection from ultraviolet and infrared radiation, a shade bar is used. A small plate type camera with the usual attachments has proved indispensable for recording industrial conditions and developments. With a compact portable flood lamp set, assembled from standard units, well defined snapshots of moving machinery in the poorly lighted or dusty interiors so often encountered in connection with hazardous industrial operations have proved surprisingly easy of execution. These photographs are assembled with others on like subjects from other sources for use in the promotional phases of the work.

The design, construction or alteration of various items of equipment by members of the staff has been noted. The chemical and engineering technique of occupational disease prevention is in large measure so new, and recent change has been so rapid, that much of the apparatus thus far commercially available is inefficient, unreasonably expensive, or both. Some quite necessary devices involve the choice between "home construction" or manufacture on special order at relatively high cost. Where the former method has seemed practical, time and material costs being duly considered, it has invariably been adopted, and it may truly be said that the savings thus effected have been a not unimportant factor in permitting the efficiency of equipment attained by the division without exceeding the modest cost estimates made prior to its establishment. Mention of a single case, in which it was found that a special piece of determination apparatus, for which \$39 was asked and of which several were needed, could be reproduced at a material cost of \$2.50 and with but little labor, will serve to explain why the drafting table, work bench and fundamental mechanic's tools which complete the engineering facilities have, with the aid of the workshop owned by a member of the staff, already more than paid for themselves.

Reference Library. — It is estimated that there are upwards of 900 potentially harmful substances used or produced in Massachusetts industries alone. Taking into account the constant and rapid changes characteristic of modern industrial chemical development and the all but limitless possibilities of combination in such a number of materials, it will readily be seen that an agency undertaking to provide effective preventive service must supplement its own relatively limited experience with the findings of as many other organizations and individuals similarly concerned as may reasonably be possible. This is most readily accomplished by examination of the current literature comprising the more important periodical journals of hygiene, medicine, chemistry, engineering and trade, as well as the numerous and miscellaneous technical papers, pamphlets and books irregularly published. To this end subscriptions have been entered to certain selected periodicals, others are borrowed, and a total of some 40 weekly and monthly publications thus secured are combed by all members of the staff for information which may have some helpful bearing on their work. The more essential reference volumes are purchased as funds permit, reprints of technical papers, usually

available without charge, are sent for as they are noted, and a considerable body of reference material privately acquired by the director over a period of ten years is being gradually introduced into the library. The division has thus accumulated some 175 books and upwards of 1,500 separate documents, many containing several separate articles, so that the estimated total of technical references already available runs considerably over the 10,000 mark. Pertaining to the engineering, chemical, medical and social aspects of occupational hygiene, dealing with hundreds of hazards ranging from silica dust to comparatively rare vegetable poisons and from storage battery manufacture to that of Portland cement, this material constitutes an invaluable aid to efficient preventive service.

An adequate answer to the problem of cataloging this body of information, lacking which it would be all but useless, has been found in the temporary employment of Miss Loraine Sullivan of the Boston Public Library, an expert in technical library classification, who in a remarkably brief period evolved the classification system on which a card catalog is being built. Miss Sullivan's work for the division, which has already called forth favorable comment from interested authorities, afforded new evidence of its pioneering aspects when it was found that no standard library classification in the occupational hygiene field had yet been made in this country. It is felt that a firm foundation has been laid to support a reference library of technical information which will in every way measure up to the requirements, not only of the division, but also of the growing body of citizens interested in occupational disease prevention, some of whom are already availing themselves of material from its shelves.

SUMMARY OF WORK DONE

The general nature of the division's preventive service is adequately summed up in the following excerpt from a statement by the director recently published in "Industry," the journal of the Associated Industries of Massachusetts.

"The primary purpose of the Division of Occupational Hygiene is to prevent occupational disease. Because the responsibility for conditions of work lies first of all with the employer, our most important relationship is with the factory owner. Since ours is essentially an advisory, rather than a regulatory function, we are clothed with no power to enter upon anyone's premises or to hail him into court for what we find there. What we are prepared and equipped to do is, on receipt of an inquiry from any source, employer, worker, insurance carrier or other agency, as to the likelihood of hazard to health in a given process or material, to determine by technical means the degree of the hazard, and, if one is found, to advise as to the most effective and economical way in which it may be controlled. Of great present importance to the state and nation are the diseases caused by the inhalation of inorganic dusts. Greater in number, if not in material importance, are the poisonings caused by fumes and gases resultant from many of the almost endless variety of chemical substances used in industry. Determination of fume and gas concentrations is the province of the chemist; measurement of dust conditions, and the removal of dusts and gases by means of ventilation, fall within the field of sanitary engineering."

Subordinate to the field service, but none the less important, is response to requests for information or advice in matters pertaining to occupational hygiene, often involving laboratory work or recourse to the reference library. Indicative of the widening interest in work of this nature is the fact that 42 inquiries were received during the year from 15 other states, as well as five from foreign countries.

Analyzing a total of 187 calls on the division's service received in the year just closed, it is found, as would be expected, that over one-third were from employer sources. Second largest group were the governmental requests, constituting calls from other state agencies and municipal units in Massachusetts, as well as bureaus of the federal government and those of other states. Third in number were the insurance group; all others were numerically minor. A complete tabulation follows:

Employers	66
Governmental	44
Insurance	25
Education and research	8
Labor organizations	8
Makers of protective equipment	8
Industrial workers	7
Physicians, hospitals	7
Employers' associations	6
N.O.C.	8
	<hr/>
	187

The nature of the industry in relation to which inquiry was made will next be considered. Here the foundries and granite shops, two very dusty industries, share the first four places with chemicals and rubber products manufacturing, known for their fume hazards. Inquiries involving a variety of industries make up the bulk of the unclassified group at the foot of the following tabulation.

foundry	19	brewing	1
chemicals mfg.	11	cotton yarn finishing	1
granite mfg.	10	dye mfg.	1
rubber products mfg.	8	felt hat mfg.	1
correctional institutions	7	fertilizer mfg.	1
paper products mfg.	7	fur cleaning	1
electrical products mfg.	6	furniture mfg.	1
machinery mfg.	5	furniture storage	1
abrasives mfg.	4	gas works	1
asbestos products mfg.	4	glue mfg.	1
cotton textile finishing	4	nitrocellulose products mfg.	1
mercantile	4	optical products mfg.	1
printing	4	paint mfg.	1
cutlery mfg.	3	petroleum refining	1
paving products mfg.	3	police	1
shipbuilding	3	shoe mfg.	1
tanning	3	shoe repairing	1
automobile mfg.	2	soap mfg.	1
automobile repairing	2	street railway	1
educational institutions	2	telephone	1
foundation work	2	toy mfg.	1
instrument mfg.	2	wool yarn mfg.	1
rayon yarn mfg.	2	unclassified	43
storage battery mfg.	2		<hr/>
waste reclaiming	2		187
armory	1		

Classification by operations considered increases the total somewhat and would do so to far greater extent if the various foundry operations involving a dust hazard had not been grouped for the purposes of the following tabulation. It is interesting to note that paint and lacquer spraying, a comparative newcomer among industrial operations, here shares the head of the list with the ancient trades of founding and granite cutting.

foundry work, dusty, N.O.C.	20	rock crushing	4
paint, lacquer spraying	14	shoe cementing	4
granite cutting	11	automobile repairing	3
type cleaning	8	leather buffing	3
type casting	7	rubber curing	3
metal grinding	5	abrasive blasting	2
electroplating	4	asbestos weaving	2
metal polishing	4	battery plate pasting	2
oxyacetylene welding	4	cotton bleaching	2

heat treating	2	glass grinding	1
lead burning	2	glass polishing	1
lead oxide mixing	2	glue crushing	1
paper coating	2	hat finishing	1
photoengraving	2	hide degreasing	1
printing	2	lacquer mixing	1
rayon finishing	2	leather dyeing	1
rayon spinning	2	leather finishing	1
rock drilling	2	lime slaking	1
rubber cementing	2	lithographing	1
tanning	2	metal etching	1
wood sanding	2	metal melting	1
wood sawing	2	metal pouring	1
wool carding	2	paint mixing	1
asbestos carding	1	paint removing	1
asbestos compounding	1	paper box making	1
asbestos grinding	1	paper dyeing	1
asbestos spinning	1	paper making	1
asphalt mixing	1	petroleum cracking	1
beer making	1	petroleum dewaxing	1
bone grinding	1	petroleum distilling	1
brush making	1	petroleum treating	1
cellulose nitration	1	pyroxylin finishing	1
chemicals mixing	1	pyroxylin machining	1
concrete mixing	1	rag washing	1
cotton carding	1	rayon mixing	1
cotton dyeing	1	resuscitation	1
cutlery handle finishing	1	roof covering making	1
dope mixing	1	rubber cement mixing	1
dye handling	1	shoe cleaning	1
dye mixing	1	shoe bronzing	1
electric welding	1	soap making	1
enamel spraying	1	structural steel cleaning	1
fertilizer mixing	1	textile coating	1
fiber picking	1	tree spraying	1
floor covering making	1	waste carbonizing	1
fumigating	1	wire insulating	1
fur cleaning	1	wool spinning	1
furniture cleaning	1		
galvanizing	1		
			194

A final classification by sources of hazard brings out the great variety of harmful materials which must be considered in work of this sort and at the same time stresses the overwhelming importance of silica dust as a cause of occupational disease. It is safe to say that the first five items in the following tabulation would stand near the top in any list of major offenders against industrial health.

silica dust	63	wood dust	5
lead compounds	25	aniline	4
benzol	20	anthrax	3
carbon tetrachloride	12	diethylene dioxide	3
cyanides	10	kerosene	3
gasoline, naphtha	10	muscular strain	3
toluol	10	nitrogen dioxide	3
ammonia	8	sulfur dioxide	3
asbestos dust	7	turpentine	3
carbon monoxide	7	xylol	3
sulfuric acid	7	amyl, butyl alcohols	2
zinc compounds	7	carbon bisulfide	2
amyl, butyl acetates	6	cotton dust	2
caustic soda	5	formaldehyde	2
chromic acid, chromates	5	heat	2
hydrochloric acid	5	hydrogen sulfide	2

leather dust	2	defective illumination	1
mercury compounds	2	diphenylaminechloroarsine	1
nitric acid	2	ethyl bromacetate	1
organic dust, N.O.C.	2	ethylene dibromide	1
quebracho extract	2	fiber dust	1
soda lime	2	glass dust	1
sodium silicate	2	glue dust	1
tar	2	hi-flash naphtha	1
trichlorethylene	2	hydrofluoric acid	1
ultraviolet, infrared radiation	2	lead arsenate	1
wool dust	2	lead tetraethyl	1
acetic acid	1	manganese compound	1
acetone	1	methanol	1
acrolein	1	mineral oil	1
antimony oxide	1	moss dust	1
bone dust	1	myrobalans	1
cadmium compounds	1	paradichlorobenzene	1
carbolic acid	1	paraffin	1
chloracetophenone	1	phosphate rock dust	1
chlorinated naphthalene	1	pyroxylin dust	1
chlorine	1	quicklime	1
chloroform	1	sumac	1
cresylic acid	1	talc	1
cryolite	1		
cutch	1		
			311

A total of 105 visits to industrial establishments were made by members of the staff in response to the calls analyzed in the above tabulations. Field and laboratory determinations totalled 796, divided as follows:

	<i>Fumes</i>	<i>Dusts</i>	<i>Total</i>
Field determinations	72	74	146
Laboratory determinations	476	174	650
Total	548	248	796

In considering these figures it should be borne in mind, first, that organization of the division's laboratory facilities was not completed until March 1, so that this report represents only some nine months' laboratory activities, and secondly that, while compliance with one request for service may call for little or no activity in either field or laboratory, another may involve a number of trips and several days of laboratory work.

Detailed description of any of the work here summarized seems hardly justified in so general a report as this. Such information is readily available to the limited number of readers to whom it might be of interest. The year's technical activities have ranged from very complete studies of atmospheric dustiness in two cutlery factories, made at the request of a trade association, to an analysis of the merits of a new type of resuscitation apparatus considered for purchase by the Metropolitan Police. While there is a special satisfaction in helping the individual worker, the most stimulating inquiry from the point of view of preventive progress is that of the employer who states that he wishes assistance in the improvement of health conditions in his factory and subsequently writes that the suggestions offered are being carried out. Enough such letters are already on file to indicate that the division, if it can earn and maintain a reputation for technical accuracy and sound and unbiased advisory service, is on the threshold of a broadly useful activity.

Attendance at Meetings. — The constant changes and developments in preventive technique and the chemistry of industry already alluded to render the interchange of information among occupational hygienists and those interested in their problems of primary importance. To this end it is desirable that members of the staff should attend and participate in such gatherings bearing on their field of work as circumstances of time and expense permit. The division was represented at eight such meetings during the year just closed.

Noteworthy among these was the Fourteenth Annual Massachusetts Safety Conference, held in Boston on May 6 and 7, which included a session on occupational diseases of which the director served as chairman. Dr. H. B. Elkins, the division's chemist, read a paper on the chemical work of the division and the engineer, Mr. Lehmberg, described its engineering work. Dr. A. S. Gray, director of the Connecticut Bureau of Occupational Diseases, brought the first half of the session to a close with a most interesting discussion of these papers in the light of the longer experience of our neighbor state. The second half of the program was given over to a masterly paper on "Toxic Vapors, Their Hazards and Their Control" read by Dr. W. F. von Oettingen, director of the newly established Haskell Laboratory of Industrial Toxicology of the E. I. du Pont de Nemours Company, which was briefly discussed by Prof. Philip Drinker of the Harvard School of Public Health.

The Second Symposium on Silicosis, a five-day meeting at Saranac Lake, N. Y., devoted to presentation of various aspects of the silicosis problem by leading medical, engineering and research authorities, was attended by the director. It is not without interest that this participation was first urged by a leading member of the Commonwealth's foundry industry. Other gatherings attended included two meetings of the Massachusetts Federation of Women's Clubs, addressed by the engineer, and a meeting devoted to industrial hazards by the Rhode Island Section of the American Chemical Society, attended by the chemist. Both as a source of information and as a means of publicizing the service offered by the division, it is to be hoped that the record of such activity will show substantial increase.

Visits to Other Agencies. — Rapid development of the division's technical service to its present efficiency has been greatly aided by opportunities afforded to staff members to study the methods of other agencies similarly engaged. Visits made during the year to other industrial hygiene laboratories have included two to the New York State Division of Industrial Hygiene by the director and chemist, two to the Connecticut Bureau of Occupational Diseases by the engineer, an extended investigation of laboratory methods in the same bureau by the chemist, as well as a study of its library cataloging system by the division's senior clerk. The very efficient industrial hygiene laboratory maintained in Boston by the Liberty Mutual Insurance Company has also been the source of much valuable information. The opportunity is welcomed to thank these several agencies for the assistance so generously rendered.

It may here be mentioned that the division's laboratory has been similarly visited by representatives of federal, state and Canadian agencies dealing with questions of industrial health.

Co-operation with U. S. Public Health Service. — The Massachusetts Benzol Labelling Law of 1933 was the first enactment of its kind in the United States. Its effect in promoting caution in the use of this highly hazardous industrial chemical, as well as stimulating the adoption of less poisonous substitutes, has been greatly enhanced by a labelling agreement of similar purport arrived at between the United States Public Health Service and the nation's benzol manufacturers in the current year. At the request of the Public Health Service, an amendment to the Massachusetts law, permitting makers of benzol compounds in this state to use either the federal or state form of label, was secured in Chapter 463, Acts of 1935.

Three similar agreements between chemical manufacturers and the Public Health Service require the labelling of (1) aniline oil, (2) carbon bisulfide and (3) carbon tetrachloride and similar volatile chlorinated liquid hydrocarbons. The fact that the first of these agreements is hardly more than a year old no doubt accounts for the violations which have come to the division's attention. Notice of these is forwarded to the Public Health Service and information as to action taken is returned in due course.

Legislation. — Legislative enactments of direct interest to the division in the current year have been but two in number, one being the benzol labelling amendment already referred to. The second, Chapter 328, Acts of 1935, amends Section 11, Chapter 149 of the General Laws to read as follows:

"The department may require every physician treating a patient whom he believes to be suffering from any ailment or disease contracted as a result of the nature, circumstances or conditions of the patient's employment to report

such information relating thereto as it may require, within such time as it may fix, and it may issue a list of such diseases which shall be regularly reported upon by physicians, and may add to or change such list at any time. The department shall pay a fee of fifty cents for each such report. Copies of all such reports and all statistics and data compiled therefrom shall be kept by it, and shall be furnished on request to the department of industrial accidents and the department of public health. No such report shall be subject to summons nor shall its contents be made public."

Originally proposed by the Special Industrial Disease Commission in its 1934 report, this amendment (1) requires the Department of Labor and Industries to pay a fee of fifty cents for physicians' reports hitherto sought without remuneration and (2) renders such reports privileged. Though effective only late in the year, there are already indications that it will materially stimulate the flow of this valuable source of information.

Publications. — The seemingly endless detail incident to establishment of the division, coupled with the routine and special work described in this report, have left little time for preparation of the printed matter so necessary to the promotion of preventive activities. Such publications as have thus far been issued have therefore been mainly reprints or one-page bulletins. The year's grist is as follows:

1. Annual Report of the Division of Occupational Hygiene for the Year Ending November 30, 1934. 6 pp.
2. "The Division of Occupational Hygiene of the Massachusetts Department of Labor and Industries." 11 pp. Reprint from *Industrial Medicine*, May, 1935.
3. "Massachusetts Division of Occupational Hygiene." 2 pp. Reprint from *Industry*, May 18, 1935.
4. "Suitcase Laboratory for State Bureau." 1 p. Reprint from *Boston Sunday Globe*, July 7, 1935.
5. "An Act Establishing a Division of Occupational Hygiene in the Department of Labor and Industries and Defining its Powers and Duties." 1 p. Reprint of Chapter 331, Acts of 1934.
6. "Dust Respirators, Type A." 1 p. A list of respirators approved by the U. S. Bureau of Mines for protection against inhalation of pneumoconiosis-producing or nuisance dusts.

Occupational Health Council. — Frequent consultation with members of the Occupational Health Council has continued to be a source of valuable advice and assistance. The death of Dr. George H. Bigelow, medical director of the Massachusetts General Hospital and member of the council, is recorded with deep regret.

Massachusetts State Health Commission. — The Massachusetts State Health Commission is engaged as the year closes in a study of all phases of public health administration in the Commonwealth. Dr. Henry D. Chadwick, commissioner of public health, is the commission's chairman. Numerous subcommittees, each relative to a definite phase of public health administration, have been appointed. Three meetings of the Subcommittee on Occupational Hygiene have thus far been held. Membership of this subcommittee is as follows: Manfred Bowditch, chairman, W. Irving Clark, M.D., Philip Drinker, Francis D. Donoghue, M.D., Dwight O'Hara, M.D., Robert S. Quinby, M.D., Samuel Squibb, Stephen E. Whiting.

SPECIAL PROJECTS

Granite Dust Control Project. — As a major step toward solution of a dust control problem both perplexing and important, it was proposed by the department's occupational hygienist in the fall of 1934 "that the Emergency Relief Administration be asked to establish a work project wherein a small group of engineers, technicians, draftsmen, sheet metal and granite workers will be engaged for an estimated period of six months to study, design and construct, under adequate supervision and with necessary equipment, devices for the removal and collection of the dust incident to the various operations of the smaller granite establishment with the greatest efficiency consistent with moderate cost."

Tentative approval of the plan by the relief authorities was readily secured and the use of a typical small granite shop, located in the city of Quincy and well suited to the project's needs, was offered rent-free by its owner. As the Commonwealth had already spent a considerable sum in its investigation of dust conditions in the granite and foundry industries by the Special Industrial Disease Commission, it seemed desirable to conduct this supplemental work without further recourse to legislative appropriation. With the two major items of labor and rent satisfactorily accounted for, an effort was inaugurated to raise funds for contingent expenses by private subscription. A campaign of solicitation carried on during the winter months finally brought forth a sum sufficient to justify commencement of the work, contributed by the following interested organizations and individuals:

Massachusetts Tuberculosis League, Inc.	\$200
Metropolitan Life Insurance Company	200
National Tuberculosis Association	200
American Mutual Liability Insurance Company	100
Employers' Liability Assurance Corporation, Ltd.	100
Granite Cutters International Association of America	100
Liberty Mutual Insurance Company	100
New Hampshire Tuberculosis Association	100
Vermont Tuberculosis Association	100
United States Mutual Liability Insurance Company	50
"An interested citizen"	30
Mrs. Raymond E. Lee	25
	<hr/>
	\$1,305

Neil A. McDonald, member of the Executive Committee of the American Granite Association, and Samuel Squibb, president of the Granite Cutters International Association of America, joined with the director as trustees of these funds and the project was given final federal approval on March 21 of this year.

A series of setbacks, including the resignation of the division's engineer and the serious illness and subsequent withdrawal of an experienced dust control worker engaged as E.R.A. supervisor of the project, as well as the need of unexpected repairs to both buildings and machinery, postponed the beginning of actual construction for nearly two months. Furthermore, it was soon learned that dependence on relief sources for specialized types of labor is no aid to more rapid prosecution of work inherently slow because of its experimental nature.

The development of the project has been along two main lines. First, all known makers of dust exhaust and collection devices applicable to the problem were invited to send samples of their equipment for erection and test under actual working conditions and subsequent display. Four manufacturers have responded, sending six separate pieces of apparatus, and a working model of a seventh device has also been received. The erection of this equipment is in the main completed and a few preliminary tests have been run. The second aspect of the project has been an effort to design and construct dust exhaust and collection apparatus in which efficiency and cost are so balanced as best to meet the needs of the small manufacturer. A new type of surfacer exhaust has been developed and some experimental work done on an exhaust device for direct attachment to hand tools. Strength and filtering efficiency tests have been made of standard fabrics, the first with a device developed by a member of the staff, the latter by R. T. Page of the Harvard School of Public Health. Using the fabric proved most suitable by these tests, a bag filter of original construction has been designed and two such filters have been erected. A portable demonstration unit, including dust source, exhaust and collector, is under construction. Means of transportation and disposal of collected dust have been developed and experiments with calcium chloride as a means of laying floor dust give interesting promise.

As it is intended to publish a complete report of the project on its conclusion, a more detailed account than the above seems unnecessary in this report. Despite the three-day E.R.A. work week and other sources of delay already mentioned, development has been steady and there is reason to feel, as the fiscal year closes,

that sound contributions to the control of dust in the smaller granite shop are under way. Notice has been received that work under the E.R.A. will be suspended on December 5, but application has been made for continuance under Works Progress Administration auspices and it is hoped that this will be acted upon in time to permit resumption at an early date. The remaining balance of contingent funds is ample for a further three months' period, within which it should be possible to complete the contemplated work.

Industrial Chemical Survey Project. — While it is known that many hundreds of chemical substances harmful to health are used in Massachusetts industries, and that certain of these materials are more commonly used in one industry than in another, no accurate knowledge of the extent or conditions of such use is available for the state as a whole. Information of this sort, obviously important in the reduction of ill-health among industrial workers, would, under ordinary conditions, be secured only after some years of effort by the division.

To more readily learn the prevalence and extent of the more important industrial health hazards and thus promote their control, application has been made to the Works Progress Administration for the services of a small group of technically trained men who will, after adequate instruction in the division's laboratory, visit during a period of six months as many as possible of the state's more important industries to obtain the facts upon which a useful survey report may be based. The work will be in two parts, first a request for information as to materials used, and secondly a study of actual conditions in those establishments whose materials or processes justify more detailed inquiry. The report of the survey will indicate the extent to which substances hazardous to health are used in the group of industries studied and the working conditions resultant from such use, but there will be no identification of individual establishments. It is planned, however, to submit to the management of each plant an advisory statement as to conditions found, indicating the points calling for attention in the matter of health control.

Notice of approval of this project was received some weeks before the close of the year and preliminary work is well under way.

If the expression of a hope for the future is not barred by convention from a report of the past, let it be said that an important opportunity for usefulness appears to lie before us through effort to stimulate a degree of co-operation among the agencies dealing with occupational disease — medical, insurance and governmental — which will enable the drawing of a statistical picture consistent with the Commonwealth's fair name in the field of public health.

REPORT OF THE MASSACHUSETTS UNEMPLOYMENT COMPENSATION COMMISSION

EMIL E. FUCHS, *Chairman*, ROBERT J. WATT, FRANK G. ALLEN
M. JOSEPH MCCARTIN, *Executive Secretary*

The Massachusetts Unemployment Compensation Law was passed by the General Court in August, 1935, and was approved by the Governor on August 12, 1935.

The Law provides for the administration of unemployment compensation in Massachusetts by a Commission of three members to be known as the Unemployment Compensation Commission, and that this Commission shall be in, but not subject to the direction of, the Department of Labor and Industries.

The Law also provides that the Division of Public Employment Offices shall be subject to the supervision and control of the Commission.

In accordance with the Law, a Commission was appointed in September, 1935, consisting of

Judge Emil E. Fuchs, *Chairman*, for a term of six years
Mr. Robert J. Watt, *Commissioner*, for a term of four years
Hon. Frank G. Allen, *Commissioner*, for a term of two years

and an office was procured in the State House.

The Executive Secretary, M. Joseph McCartin, was appointed in November, 1935, and a small organization was set up.

An Advisory Council was appointed by the Governor and approved by the Executive Council on September 22, 1935, and consists of

Representing the Public:

Dr. A. Lawrence Lowell, *Chairman*, for a term of six years
Miss Amy Hewes, for a term of four years
Mr. Philip J. Philbin, for a term of two years

Representing the Employer:

Mr. Edward J. Frost, for a term of six years
Mr. Frank D. Comerford, for a term of four years
Mr. Albert N. Murray, for a term of two years

Representing the Employee:

Mr. John F. Gatelee, for a term of six years
Mrs. Mary V. Murphy, for a term of four years
Mr. Archie Gillis, for a term of two years

The Massachusetts Unemployment Compensation Law was passed prior to the enactment of the Federal Social Security Act. The Federal Social Security Act provides for certain allowances to states and to employers subject to state unemployment compensation laws in those states which have in operation unemployment compensation laws or unemployment insurance laws which have been approved by the Federal Social Security Board. Accordingly, one of the first steps taken by the Massachusetts Unemployment Compensation Commission was to obtain the approval of the Massachusetts Law by the Federal Social Security Board.

During the short period the Commission was in existence prior to December 1, 1935, which is the period covered by this report, much of the time of the Commission was spent in conferences with various interested groups; in disseminating information regarding the Law; and in the preparation of certain necessary amendments to the Law in order to obtain approval of the Massachusetts Law by the Federal Social Security Board in accordance with Section 903 of the Social Security Act.

Pursuant to Chapter 479 of the Acts of 1935, 25,000 copies of the Massachusetts Law, Chapter 151A as contained in Chapter 479 of the Acts of 1935, were printed and distributed by the Commission. A booklet, entitled, "Digest and Questionnaire," was printed and 25,000 copies distributed to employers and the general

public. A preliminary questionnaire was sent to 25,000 employers requesting certain information for statistical purposes.

An appropriation for the Commission to cover administrative expenses until such time as an allocation of funds for the purpose was received from the Federal Social Security Board, amounted to \$7,000, in accordance with Chapter 497 of the Acts of 1935, Item 448a.

The preparation of plans of organization, procurement of larger quarters, the selection of personnel, and numerous other details were given consideration by the Commission during the period covered by this report.

The report of the Division of Public Employment Offices, commonly known as the Massachusetts State Employment Service (affiliated with the United States Employment Service), for the fiscal year ending November 30, 1935, prepared by Mr. Fred J. Graham, Director of that Division, follows. For purposes of convenience in making analyses, the statistics presented in this report cover the operations during the calendar year ending December 31, 1935.

REPORT OF THE DIVISION OF PUBLIC EMPLOYMENT OFFICES

(Affiliated with United States Employment Service)

FRED J. GRAHAM, *Director*

INTRODUCTION

The following is a report of the operations, during the fiscal year ending November 30, 1935, of the Division of Public Employment Offices, commonly known as the Massachusetts State Employment Service, affiliated with the United States Employment Service. In addition to the general report a statistical summary is also included which contains, primarily, data covering the operations of the division during the calendar year 1935. Summary data for prior years are also presented for purposes of comparison.

On the first day of the fiscal year being reported upon, namely December 1, 1934, Mr. John A. Jones entered upon his duties as Director of this division succeeding Mr. Everett L. Hanna, Superintendent of the Boston Office, who had served as acting Director since the resignation of Mr. M. Joseph McCartin from the Directorship on October 15, 1934. Mr. Jones served as Director until March 14, 1935, and was succeeded on the following day by Mr. P. J. Sullivan. Mr. Sullivan's tenure of office in the Directorship lasted from March 15, 1935, to September 26, 1935, inclusive. Mr. Fred J. Graham succeeded Mr. Sullivan as Director on September 27, 1935.

During the fiscal year the agreement of affiliation with the United States Employment Service was continued in accordance with the plan outlined by the so-called Wagner-Peyser Act passed by Congress in 1933. Under the terms of this affiliation, the Federal Government matched the State appropriation for Public Employment Offices on a dollar for dollar basis, thus making it possible for this division to render more adequate service to residents of the Commonwealth.

TRANSFER TO UNEMPLOYMENT COMPENSATION COMMISSION

In accordance with Section 6 of Chapter 479 of the acts of 1935, "The existing division of Public Employment Offices is hereby transferred to the jurisdiction of the Unemployment Compensation Commission established by this Act." This act of the Legislature was approved on August 12, 1935, and the transfer of this division to the newly created commission was finally effected on September 17, 1935. While this transfer from the department of Labor and Industries to the Unemployment Compensation Commission is seemingly a drastic change, nevertheless, the new duties which will be thrust upon this division will not be evident until approximately 1937. The work of the division has therefore proceeded in the usual channels, that is, the registration of unemployed applicants, the securing of openings, the referring of qualified workers, and the follow-up to determine whether such persons have actually become employed. In the future, however, it is expected that the functions of this division will become greatly expanded and that this service will become an extremely vital part of the economic life of the Commonwealth, inasmuch as it will be the agency which unemployed workers will first contact in order to secure unemployment benefits.

DEVELOPMENT AND EXPANSION

In October, 1935, additional space was secured for the Worcester office in the building it now occupies. This additional space afforded greater facilitation in interviewing the increased number of applicants calling at the office in reference to the work relief program of the Federal Government, with which the offices of the division co-operated, as explained below.

STATE ADVISORY COUNCIL

The personnel of the State Advisory Council remained practically unchanged during this fiscal year. As outlined in the agreement of affiliation with the United States Employment Service, the purpose of this Council is in general to act as an advisory board in formulating policies of administration and to assist in maintaining the standards established by the United States Employment Service. The

State Advisory Council is made up of representatives of employers and employees in equal numbers and the public. The membership of this Council on November 30, 1935, was as follows:

Representatives of Employers

John S. Lawrence	Boston	Chairman, Mass. Division N. E. Council
Henry S. Dennison	Framingham	Pres., Dennison Manufacturing Company
Alfred W. Donovan	Rockland	Pres., E. T. Wright Shoe Company
Lincoln Filene	Boston	Chairman of Board, William Filene's Sons Company
F. H. Willard	Worcester	Pres., Graton & Knight Company

Representatives of Employees

Robert J. Watt	Boston	Sec.-Treas., Mass. State Branch of A. F. of L.
John F. Gatelee	Boston	Pres., Mass. State Branch of A. F. of L.
Ernest A. Johnson	Boston	Pres., Boston Building Trades Council
*John R. Machado	Fall River	Pres., Fall River Central Labor Union
Charles F. Sweeney	Fitchburg	Sec.-Treas., Fitchburg Central Labor Union

Representatives of the Public

Mrs. LaRue Brown	Boston	Trustee, Massachusetts Training School
Roy M. Cushman	Boston	Exec. Sec., Boston Council of Social Agencies
Leo M. Harlow	Boston	Past State Commander, American Legion — Lawyer
Miss Amy Hewes	So. Hadley	Dept. of Economics and Sociology, Mt. Holyoke College
Dr. Stanley King	Amherst	Pres., Amherst College
Paul F. Perkins	Boston	Assoc. Counsel, N. Y., N. H. & H. R. R.
Mrs. Katherine Shattuck	Worcester	Exec. Sec., Industrial Dept., Y. W. C. A.
Robert O. Small	Boston	Deputy Commissioner, State Dept. of Education
Julian D. Steele	Boston	Director, Robert Gould Shaw House
Judge William M. Welch	Northampton	
Margaret Wiesman	Boston	Sec., Consumers' League of Massachusetts

Officers

Chairman: John S. Lawrence

Vice-Chairman: Robert J. Watt

Secretary: Fred J. Graham

*Deceased

The members of the three standing committees are as follows:

Executive Committee

John S. Lawrence, <i>Chairman</i>	Ernest A. Johnson
Robert J. Watt, <i>Vice-Chairman</i>	Miss Amy Hewes
Alfred W. Donovan	Miss Margaret Wiesman
Fred J. Graham, <i>Secretary</i>	

Veterans' Placement Service Committee

Leo M. Harlow, *Chairman*, former State Commander of American Legion
 Daniel J. Doherty, *State Commander*, American Legion
 Walter Howard, *State Commander*, Veterans of Foreign Wars
 T. James Gallagher, *State Commander*, Disabled American Veterans of World War
 William Quirk, *State Commander*, United Spanish War Veterans

Committee on Junior Placement and Handicapped

Miss Susan Ginn, *Chairman*

Robert O. Small

Fred J. Graham

The Council and its executive committee met several times during the fiscal year and discussed problems facing this division. They also offered assistance in regard to a choice of a Director for this division.

LOCAL ADVISORY COUNCILS

The Local Advisory Councils which are provided for in the organization of this division are designed to act as clearing houses for the discussion of the particular problems affecting employment in the territory served by each employment office. During the past fiscal year, due to unusual conditions, it was not feasible to organize Local Advisory Councils in every city in which this division operates employment offices. As in the case of the previous year, the only city in which a Local Advisory Council was organized was in Boston. The membership of this Local Advisory Council was also made up of representatives of employers and employees in equal numbers together with representatives of the public. The members of the Boston Advisory Council are as follows:

Representatives of Employers

David F. Edwards	.	Boston	.	Pres., Saco-Lowell Shops
Arthur Newhall	.	Watertown	.	Pres., Hood Rubber Company

Representatives of Employees

Ernest Johnson	.	Boston	.	Pres., Boston Building Trades Council
J. Arthur Moriarty	.	Boston	.	Pres., Boston Central Labor Union

Representatives of the Public

Edward Dana	.	Boston	.	General Mgr., Boston Elevated Railway
Lincoln Filene	.	Boston	.	Chairman of Board, Wm. Filene's Sons Company
Walter H. Neaves	.	Boston	.	Exec. Vice-Pres., Federal Home Loan Bank

Officers

Chairman: Walter H. Neaves

WORKS PROGRESS ADMINISTRATION

During this fiscal year, the Federal Government appropriated \$4,880,000,000 for relief purposes to be administered by the Works Progress Administration. In accordance with the spirit of coordination between the various departments of the Federal Government, the United States Employment Service was designated as the registration and referral agency for personnel to be employed on the projects financed by this so-called "Emergency Relief Appropriation Act of 1935." Inasmuch as the Division of Public Employment Offices is an affiliate of the United States Employment Service, this division prepared to enter upon the prescribed duties in connection with this program. It later developed that we were not organized to perform the social service work required to establish eligibility for these relief workers, inasmuch as this division is organized for placing the best qualified applicants in available openings, regardless of pecuniary need. The actual referral of applicants on relief work was, therefore, transferred to the State Works Progress Administration. In this way, referrals were made possible on the basis of need rather than purely on the basis of qualification.

It was necessary, however, that all persons referred to projects financed by the Emergency Relief Appropriation Act of 1935 be registered with this service so that they would be available for private employment. This requirement placed an unprecedented amount of work upon this division and resulted in a great increase in the size of our files and the number of personal contacts made. It was necessary to secure additional space in many cases, and in the smaller offices which served large rural areas it was necessary to conduct itinerant registrations in order that all workers on WPA projects could be registered with this Service. This co-operation with the Works Progress Administration began in the fall of 1935 and continued into the succeeding fiscal year.

PUBLIC WORKS ADMINISTRATION

In addition to the above explained co-operation with the Works Progress Administration, the division also acted as the registration and referral agency for Public Works Administration projects. These projects were largely of a contract nature, upon which skilled workers were demanded. This type of placement work was more in accordance with the procedures which had been followed by this division since its organization, in that workers were referred who were best qualified, regardless of their pecuniary condition, rather than on the basis of their financial need without particular regard to their ability to function satisfactorily in a particular occupation.

NATIONAL YOUTH ADMINISTRATION

In November, 1935, a plan was agreed upon whereby co-operation was effected between the United States Employment Service and the National Youth Administration for the purpose of developing additional facilities in junior counselling and placement in a limited number of employment offices. As an affiliate of the United States Employment Service, this division was eligible to engage in this type of work, using the funds appropriated for the National Youth Administration for this purpose. However, actual co-operation in this program did not occur until the succeeding fiscal year so that a complete report cannot be prepared at the present time.

OTHER FEDERAL AGENCIES

The Division of Public Employment Offices co-operated in the work of the Federal Committee on Apprentice Training which was established by the Secretary of Labor for the placing of youth under apprentice agreements. The Director of this division is a member of the State Committee on Apprentice Training. This division also co-operated with the National Emergency Council and provided the Massachusetts headquarters with the necessary data concerning the number of persons on relief who were placed in private industry.

PERPETUAL INVENTORY PROJECT

In all employment office statistics in the past, it has been possible to determine with comparative ease the number of applications received during any particular period of time as well as the number of openings, referrals, placements, etc. It has also been possible to determine the size of the active file, that is, the number of application cards on file of persons who are actively seeking employment, and thereby to estimate the number of unemployed in any given community. However, it has never been possible up to the present time to maintain current statistics concerning the classification of people whose cards are contained in the active file in each office.

In order that it might be possible to maintain a Perpetual Inventory of the active file whereby it might be possible to determine in any given state the occupational background, the former industrial attachment, the age group, sex, and the veteran status of the persons whose cards are in the active file, a WPA project was set up to finance the preparation of the necessary data. The allotment to this division for personal services permitted the employment of 24 field clerks and 2 statistical clerks to assist in going over the files and listing the essential information pertaining to each applicant. Following the submission of the data sheets to Washington, the information will be tabulated by machine and will be kept up-to-date by means of daily reports of activities so that at any given time it will be possible to run this material through a tabulating machine and thereby determine the composition of the registered unemployed.

The work on this project was begun in November, 1935, and continued into the succeeding fiscal year.

STAFF CONFERENCES

During the fiscal year reported upon, a number of staff conferences were held to acquaint the personnel with new developments and to act as a training course for younger members of the personnel. Some of these conferences were of interest primarily to registrars while others were arranged for the Superintendents who were requested to come to Boston for instruction in new procedures. Most of the staff conferences were addressed by members of the personnel who had had ex-

perience in some particular phase of business before entering the employ of the State. In this way it was possible for the entire group to obtain a general knowledge of employment conditions in many types of industries.

PUBLIC RELATIONS

The field of Public Relations was unfortunately not given the extensive treatment which ordinarily prevails, due to the unusual conditions during the year brought about by our connection with the recovery activities of the Federal Government. Most of the work along this line was handled individually by the office Superintendents in accordance with the public relations facilities available in each city. In New Bedford it was possible for the Superintendent of that office to make arrangements during the fall of 1935 for a series of broadcasts over the local radio station WNBH without expense to the Commonwealth. These broadcasts on the basis of sustaining programs have been informative in their nature and have covered such subjects as "The History and Organization of the Massachusetts State Employment Service and the United States Employment Service," "The Relation of the United States Employment Service to Other Governmental Departments," "Employment Problems of Young Men," "General Employment Problems for Women," "The Employment Problem of the Woman over Forty-Five," and "Employment Office Mechanics."

All offices engaged in the customary contacts with employers and prospective employers both by circularizing by mail and by making visits to the firms. This continued in a normal way until the fall of 1935 when the advent of the Works Progress Administration made it difficult to engage in this endeavor. The personnel of the State Administrative office and of several of the local offices delivered addresses to clubs and other organizations to acquaint the general public with the work of this division.

STATISTICAL SUMMARY

In Table 1 are presented principal data covering the activities of the division during the calendar year 1935, together with corresponding data for the calendar year 1934. Since four of the five offices opened in 1934 were not in operation during the entire year, the data pertaining to these four offices for 1934 and 1935 are not comparable. In order to facilitate comparison, subtotals have been presented in Table 1 for the four offices which were in operation during the entire twelve months of 1934 and 1935, namely, Boston, Lowell, Springfield, and Worcester.

Table 1.—Summary of Business of the Division of Public Employment Offices During the Years 1935 and 1934: By Offices

OFFICES	1935				1934			
	Applica- tions	Open- ings	Referrals	Place- ments	Applica- tions	Open- ings	Referrals	Place- ments
Boston . . .	40,329	10,314	13,336	8,265	60,888	10,504	12,842	8,433
Lowell . . .	8,543	2,728	3,413	2,521	7,922	2,533	2,982	2,292
Springfield . . .	14,627	4,502	4,597	4,269	11,278	5,951	6,586	5,615
Worcester . . .	16,085	5,026	5,700	3,957	12,994	5,693	6,414	4,608
<i>Subtotals</i> . . .	<i>79,584</i>	<i>22,570</i>	<i>27,046</i>	<i>19,012</i>	<i>93,082</i>	<i>24,681</i>	<i>28,824</i>	<i>20,948</i>
Greenfield ¹ . . .	4,737	3,444	3,770	3,209	815	400	621	347
Lynn ² . . .	8,686	2,657	4,548	2,219	7,767	1,951	3,104	1,435
New Bedford ² . . .	11,380	1,711	3,497	1,639	4,177	1,220	1,608	1,074
Pittsfield ² . . .	3,454	2,321	3,139	2,205	1,942	1,227	1,517	1,104
<i>Totals</i> . . .	<i>107,841</i>	<i>32,703</i>	<i>42,000</i>	<i>28,284</i>	<i>107,783</i>	<i>29,479</i>	<i>35,674</i>	<i>24,908</i>

¹ Three months for Greenfield during 1934; office opened October 1, 1934.

² Nine months for Lynn, New Bedford, and Pittsfield; statistics merged as of April 1, 1934.

Placements. — During the calendar year 1935 the total number of placements made in all offices amounted to 28,284. This was an increase of 3,376 or 13.55 per cent over the number of placements (24,908) made in 1934. In the four offices which were in operation during the full twelve months of both 1934 and 1935 (Boston, Lowell, Springfield, and Worcester) there were 19,012 placements reported in 1935 and 20,948 in 1934. This represents a decrease of 1,936 or 9.24 per cent in 1935 compared with the previous year. The percentage changes in

each of these four offices were: Boston, 1.99 per cent decrease; Lowell, 9.99 per cent increase; Springfield, 23.97 per cent decrease; and Worcester, 14.13 per cent decrease.

Openings. — The total number of openings received by all offices during the calendar year 1935 was 32,703, which was an increase of 3,224 or 10.94 per cent over the number (29,479) received in 1934. In the four offices which were in operation during the entire twelve months of both years a total of 22,570 openings were recorded, a decrease of 2,111 or 8.55 per cent from the 24,681 which had been received in 1934. The percentage changes in these four offices were: Boston, 1.81 per cent decrease; Lowell, 7.70 per cent increase; Springfield, 24.35 per cent decrease; and Worcester, 11.72 per cent decrease.

The 32,703 openings received resulted in 28,284 verified placements. This represented 86.49 per cent of the total number of openings. In 1934 the percentage of openings filled was 84.5 per cent, while in 1933 this figure was 90.2 per cent.

Table 2.—Summary of Business of the Division of Public Employment Offices During the Years 1935 and 1934: By Offices and Sex

OFFICE AND CLASSIFICATION	1935				1934			
	Applica- tions	Open- ings	Referrals	Place- ments	Applica- tions	Open- ings	Referrals	Place- ments
All offices combined:								
Men	73,878	23,478	29,356	20,722	79,549	21,202	24,974	18,914
Women	33,963	9,225	12,644	7,562	28,234	8,277	10,700	5,994
Totals	107,841	32,703	42,000	28,284	107,783	29,479	35,674	24,908
Boston:								
Men	28,464	7,772	10,409	6,157	44,724	7,630	8,977	6,324
Women	11,865	2,542	2,927	2,108	16,164	2,874	3,865	2,109
Totals	40,329	10,314	13,336	8,265	60,888	10,504	12,842	8,433
Greenfield: ¹								
Men	3,388	2,823	2,680	2,643	514	255	434	219
Women	1,349	621	1,090	566	301	145	187	128
Totals	4,737	3,444	3,770	3,209	816	400	621	347
Lowell:								
Men	5,088	2,490	2,911	2,329	6,196	2,300	2,620	2,117
Women	3,455	238	502	192	1,726	233	362	175
Totals	8,543	2,728	3,413	2,521	7,922	2,533	2,982	2,292
Lynn: ²								
Men	5,966	1,464	2,233	1,388	5,551	1,480	2,100	1,164
Women	2,720	1,193	2,315	831	2,216	471	1,004	271
Totals	8,686	2,657	4,548	2,219	7,767	1,951	3,104	1,435
New Bedford: ²								
Men	7,158	1,128	2,319	1,089	3,370	1,045	1,335	971
Women	4,222	583	1,178	550	807	175	273	103
Totals	11,380	1,711	3,497	1,639	4,177	1,220	1,608	1,074
Pittsfield: ²								
Men	2,039	1,727	2,215	1,726	1,426	1,021	1,219	985
Women	1,415	594	924	479	516	206	298	119
Totals	3,454	2,321	3,139	2,205	1,942	1,227	1,517	1,104
Springfield:								
Men	11,042	2,763	2,673	2,548	8,187	4,138	4,364	4,090
Women	3,585	1,739	1,924	1,721	3,091	1,813	2,222	1,525
Totals	14,627	4,502	4,597	4,269	11,278	5,951	6,586	5,615
Worcester:								
Men	10,733	3,311	3,916	2,842	9,581	3,333	3,925	3,044
Women	5,352	1,715	1,784	1,115	3,413	2,360	2,489	1,564
Totals	16,085	5,026	5,700	3,957	12,994	5,693	6,414	4,608

¹ Three months for Greenfield during 1934; office opened October 1, 1934.

² Nine months for Lynn, New Bedford, and Pittsfield during 1934; statistics merged as of April 1, 1934.

Referrals. — There was a total of exactly 42,000 referrals made by all offices during the calendar year 1935, which was 6,326 or 17.73 per cent greater than the number (35,674) made in 1934. In the four offices which were in operation throughout

the calendar year 1935, there were 27,046 referrals made, a decrease of 1,778 or 6.17 per cent from the number (28,824) made during 1934. The percentage changes in these four offices were: Boston, 3.85 per cent increase; Lowell, 14.45 per cent increase; Springfield, 30.20 per cent decrease; and Worcester, 11.13 per cent decrease.

During the calendar year 1935, the 42,000 referrals made resulted in 28,284 verified placements, or an average of 1.5 persons sent out for each position filled. This ratio was 1.4 in 1934 and 1.3 in 1933.

Summary by Sex.—In Table 2 are presented principal data by sex for each office separately and for all offices combined for the calendar years 1935 and 1934. In all offices combined, 20,722 of the 28,284 placements made were of men. This represents 73.26 per cent of the total. In the Boston office, 74.49 per cent of the placements were of men; in Greenfield, 82.36 per cent; in Lowell, 96.20 per cent; in Lynn, 62.55 per cent; in New Bedford, 66.44 per cent; in Pittsfield, 78.28 per cent; in Springfield, 59.69 per cent; and in Worcester, 71.82 per cent.

Table 3.—Summary of Business of the Division of Public Employment Offices During the Years 1935 and 1934: By Offices and Months

OFFICE AND MONTH	1935				1934			
	Applica- tions	Open- ings	Referrals	Place- ments	Applica- tions	Open- ings	Referrals	Place- ments
ALL OFFICES COMBINED								
January	3,783	1,748	2,175	1,409	22,675	3,683	4,303	1,568
February	4,148	1,325	1,798	1,002	6,111	1,706	1,969	1,405
March	5,272	2,319	3,184	1,621	9,647	2,015	2,253	1,540
April ¹	4,827	3,185	4,378	2,674	10,552	1,986	2,440	1,821
May	4,478	3,158	4,241	2,810	14,176	2,224	2,734	3,954
June	5,955	2,643	3,485	2,363	13,392	2,647	3,411	2,133
July	6,667	2,848	3,392	2,514	5,815	2,585	3,320	2,061
August	9,804	2,534	3,341	2,491	4,793	2,543	2,964	2,009
September	11,311	2,875	3,670	2,591	4,236	2,101	2,602	1,620
October ²	17,268	3,594	4,759	2,641	8,047	3,145	3,726	2,401
November	18,210	3,909	4,963	3,558	5,143	2,604	3,191	2,291
December	16,118	2,565	2,614	2,610	3,196	2,240	2,761	2,105
<i>Totals</i>	<i>107,841</i>	<i>32,703</i>	<i>42,000</i>	<i>28,284</i>	<i>107,783</i>	<i>29,479</i>	<i>35,674</i>	<i>24,908</i>
Boston:								
January	1,901	424	578	266	16,560	2,319	2,848	349
February	2,272	426	515	279	4,224	459	671	398
March	2,476	690	849	433	6,066	855	968	330
April	2,079	860	1,214	587	4,372	774	988	902
May	2,240	915	1,245	859	5,494	732	869	2,743
June	2,487	618	985	533	9,232	486	706	317
July	2,977	674	922	593	2,584	552	711	315
August	4,392	529	766	477	2,191	718	843	407
September	4,417	758	1,093	668	2,036	765	892	498
October	3,697	1,658	2,083	928	4,089	1,239	1,510	841
November	5,406	1,995	2,214	1,677	2,550	1,030	1,227	866
December	5,985	767	872	965	1,490	575	609	467
<i>Totals</i>	<i>40,329</i>	<i>10,314</i>	<i>13,336</i>	<i>8,265</i>	<i>60,888</i>	<i>10,504</i>	<i>12,842</i>	<i>8,433</i>
Greenfield:²								
January	267	124	190	106	—	—	—	—
February	356	112	170	94	—	—	—	—
March	204	230	257	142	—	—	—	—
April	202	251	360	262	—	—	—	—
May	244	245	305	214	—	—	—	—
June	467	305	329	257	—	—	—	—
July	433	467	408	418	—	—	—	—
August	449	376	423	426	—	—	—	—
September	416	321	290	273	—	—	—	—
October	792	265	331	260	383	143	266	122
November	747	408	423	372	249	116	199	101
December	160	340	284	385	183	141	156	124
<i>Totals</i>	<i>4,737</i>	<i>3,444</i>	<i>3,770</i>	<i>3,209</i>	<i>815</i>	<i>400</i>	<i>621</i>	<i>347</i>

¹ Statistics of Lynn, New Bedford and Pittsfield offices merged as of April 1, 1934.

² Greenfield office opened October 1, 1934.

Table 3.—Summary of Business of the Division of Public Employment Offices During the Years 1935 and 1934: By Offices and Months — Continued

OFFICE AND MONTH	1935				1934			
	Applica- tions	Open- ings	Referrals	Place- ments	Applica- tions	Open- ings	Referrals	Place- ments
Lowell:								
January	249	268	253	268	1,295	104	104	58
February	342	135	206	108	290	91	96	86
March	459	214	323	213	682	80	90	72
April	282	313	444	307	733	57	85	43
May	308	267	415	264	1,965	102	122	82
June	293	240	375	233	430	526	675	474
July	454	267	296	239	484	429	477	400
August	447	240	286	217	389	212	238	191
September	403	121	187	118	373	184	187	131
October	1,636	199	293	176	634	246	279	256
November	2,494	184	142	152	362	199	217	188
December	2,176	280	193	226	285	303	412	311
Totals	8,543	2,728	3,413	2,521	7,922	2,533	2,982	2,292
Lynn: ¹								
January	460	205	345	160	—	—	—	—
February	374	160	292	116	—	—	—	—
March	501	202	450	153	—	—	—	—
April	367	296	504	243	2,056	129	159	72
May	430	342	593	273	1,053	174	225	89
June	517	297	494	246	1,215	152	290	145
July	525	256	363	217	706	298	471	228
August	1,130	209	345	174	623	188	336	91
September	577	219	382	189	608	111	266	71
October	1,252	222	358	200	691	223	357	164
November	1,074	153	229	170	510	153	291	114
December	1,479	96	193	78	305	523	709	461
Totals	8,686	2,657	4,548	2,219	7,767	1,961	3,104	1,436
New Bedford: ¹								
January	211	100	120	80	—	—	—	—
February	192	73	110	57	—	—	—	—
March	323	223	336	143	—	—	—	—
April	306	177	324	160	232	61	89	35
May	395	146	317	153	1,187	34	58	13
June	983	115	205	113	419	38	53	37
July	995	104	232	99	650	220	327	224
August	1,061	165	286	166	458	286	352	282
September	1,200	142	343	143	199	55	85	46
October	2,792	202	489	206	497	148	186	96
November	2,140	145	508	211	329	270	278	254
December	782	119	227	108	206	108	180	87
Totals	11,380	1,711	3,497	1,639	4,177	1,220	1,608	1,074
Pittsfield: ¹								
January	78	64	93	52	—	—	—	—
February	59	50	60	40	—	—	—	—
March	528	156	190	86	—	—	—	—
April	374	275	332	250	611	34	34	34
May	112	284	314	173	205	60	125	89
June	153	213	184	195	248	176	278	147
July	127	176	238	203	184	172	218	159
August	570	187	291	240	165	260	264	193
September	303	231	316	236	97	210	226	194
October	648	272	397	214	175	142	149	136
November	377	167	581	272	126	104	134	89
December	125	246	143	244	131	69	89	63
Totals	3,454	2,321	3,139	2,206	1,942	1,227	1,517	1,104
Springfield:								
January	313	197	221	204	2,459	704	746	650
February	261	143	172	127	967	602	638	451
March	297	217	284	197	1,730	368	406	413
April	759	391	472	359	1,061	380	464	328
May	328	326	354	356	912	632	695	615
June	517	393	392	392	1,126	601	709	582
July	518	420	465	370	538	599	611	512
August	834	560	588	574	448	411	496	449
September	2,773	588	479	574	486	459	552	414
October	4,309	356	360	327	751	550	540	522
November	2,406	468	428	380	510	410	462	296
December	1,312	443	382	409	290	235	267	383
Totals	14,627	4,502	4,597	4,269	11,278	5,951	6,586	5,615

¹ Statistics of Lynn, New Bedford and Pittsfield offices merged as of April 1, 1934.

² Greenfield office opened October 1, 1934.

Table 3.—*Summary of Business of the Division of Public Employment Offices During the Years 1935 and 1934: By Offices and Months — Continued*

OFFICE AND MONTH	1935				1934			
	Applica- tions	Open- ings	Referrals	Place- ments	Applica- tions	Open- ings	Referrals	Place- ments
Worcester:								
January . . .	304	366	375	273	2,361	556	605	511
February . . .	292	226	273	181	630	554	564	470
March . . .	484	387	495	254	1,169	712	789	725
April . . .	458	622	728	506	1,487	551	621	407
May . . .	421	633	698	518	3,360	490	640	323
June . . .	538	462	521	394	722	668	700	431
July . . .	638	484	468	375	669	315	505	223
August . . .	921	268	356	217	519	468	435	396
September . . .	1,222	495	580	390	437	317	394	266
October . . .	3,142	420	448	330	827	454	439	264
November . . .	3,566	389	438	324	507	322	383	383
December . . .	4,099	274	320	195	306	286	339	209
Totals . . .	16,085	5,026	5,700	3,957	12,994	5,693	6,414	4,608

Summary by Months:—The activities of each office separately, and of all offices combined, by months, for the years 1935 and 1934, are summarized by the principal data presented in Table 3. In the division as a whole, during 1935, November was the busiest month, during which 18,210 new applications were received and 3,558 placements made. This peak was the result of Works Progress Administration activities, since all workers on projects of this nature were obliged to register with this division in order to be available for private employment. In addition, this division was called upon to refer applicants to a number of projects on which skill was as important a qualification as economic need.

In making analyses of the work of the division as a whole during 1935 and 1934, it should be taken into consideration that only four of the offices were open during the entire twelve months of both years. These were the offices in Boston, Lowell, Springfield, and Worcester. The statistics of the offices in Lynn, New Bedford, and Pittsfield were merged as of April 1, 1934, while the Greenfield office was opened on October 1, 1934. Thus, for only three months were the full eight offices reported upon, namely, October, November, and December. It is therefore not possible to compare the data for the division as a whole for the first nine months of 1935 with the corresponding months of 1934. For purposes of comparison, it will be necessary to consider only the offices in Boston, Lowell, Springfield, and Worcester, either separately or as a unit, and eliminate the remaining offices from the analysis.

Table 4.—*Number of Veterans Registered and Number of Veterans Placed by the Division of Public Employment Offices During the Years 1935 and 1934: By Offices*

OFFICES	1935		1934	
	Registra- tions	Place- ments	Registra- tions	Place- ments
Boston	2,246	907	1,653	4,370
Greenfield ¹ . . .	225	250	44	38
Lowell . . .	283	366	383	683
Lynn ² . . .	502	225	275	286
New Bedford ² . . .	358	245	254	498
Pittsfield ² . . .	104	152	47	98
Springfield . . .	985	158	530	842
Worcester . . .	663	469	632	609
Totals . . .	5,366	2,772	3,818	7,424

¹ Three months for Greenfield for 1934; office opened October 1, 1934.

² Nine months for Lynn, New Bedford, and Pittsfield for 1934; statistics merged as of April 1, 1934.

Placements of Veterans.—In Table 4 are presented data showing the number of veterans registered and the number of placements of veterans during the years

1935 and 1934. In the division as a whole the number of registrations increased in 1935 to 5,366, while the number of placements decreased to 2,772.

In some offices, such as Greenfield, Lowell, and Pittsfield, the number of placements of veterans exceeded the number of registrations. This situation is due to the fact that registrations are counted but once, when applicants first register, while placements are counted when verified. Thus, a veteran may register once during the year and be placed more than once, thus making the veteran placements greater than the registrations. Another factor in creating this situation in these offices is that Public Works Administration projects, upon which veterans were given preference in employment, were carried on largely in rural areas, inasmuch as the work on these projects was largely the construction of highways and bridges. Conversely, in the three largest cities in the Commonwealth, Boston, Worcester, and Springfield; in Lynn, which is in the Boston Metropolitan District; and in New Bedford, where the employment office serves only a limited area, the placements of veterans number less than the registrations.

As shown in Table 4, the number of veterans registered rose from 3,818 in 1934 to 5,366 in 1935, an increase of 40.54 per cent. During the same period, placements of veterans dropped from 7,424 to 2,772, a decrease of 62.66 per cent. Of the 20,722 placements of men made during 1935 in all offices of the division, 2,772, or 13.38 per cent, were of veterans, while during the same period the 5,366 veterans registered represented only 7.26 per cent of the 73,878 men who registered.

APPENDIX

Table A: Number of Placements Made by the Division of Public Employment Offices: By Years, 1907 to 1935.

Table B: Number of Placements Made by the Division of Public Employment Offices: By Months, 1928 to 1935.

Table C: Number of Openings and Placements Reported by the Division of Public Employment Offices: By Months, 1924 to 1935.

Table A.—Number of Placements Made by the Division of Public Employment Offices: By Years, 1907-1935

YEAR	Boston ¹ Trades and Labor Office	Boston ⁵ Clerical and Technical Office	Boston Total	Fall River ³	Green- field ¹¹	Lowell ¹²	Lynn ¹³	New Bedford ¹⁴	Pitts- field ¹⁵	Spring- field ²	Worce- ster ⁴	Total All Offices
<i>Fiscal year ending November 30</i>												
1907	14,480 ¹	—	14,480	234 ³	—	—	—	—	—	796 ²	—	15,510 ⁸
1908	9,941	—	9,941	2,583	—	—	—	—	—	2,431	—	14,955
1909	13,034	—	13,034	1,541	—	—	—	—	—	3,166	—	17,741
1910	15,478	—	15,478	1,421	—	—	—	—	—	3,675	—	20,574
1911	15,806	—	15,806	1,042	—	—	—	—	—	4,310	—	21,158
1912	19,554	—	19,554	1,641	—	—	—	—	—	5,392	—	26,587
1913	20,971	—	20,971	1,269	—	—	—	—	—	6,325	522 ⁴	29,117 ⁷
1914	15,724	—	15,724	1,125	—	—	—	—	—	4,685	—	24,710 ⁸
1915	14,491	—	14,491	942	—	—	—	—	—	6,106	—	26,689
1916	18,125	—	18,125	1,348	—	—	—	—	—	10,999	—	33,865
1917	19,120	—	19,120	383 ³	—	—	—	—	—	12,344 ⁹	—	31,155 ⁹
13 months ending December 31, 1917	18,747 ⁹	—	18,747 ⁹	383 ³	—	—	—	—	—	12,344 ⁹	—	31,155 ⁹
<i>Calendar year</i>												
1918	18,125	—	18,125	—	—	—	—	—	—	12,576	9,034	39,735
1919	16,885	—	16,885	—	—	—	—	—	—	12,287	8,443	37,615
1920	16,910	—	16,910	—	—	—	—	—	—	12,044	8,566	37,520
1921	11,734	—	11,734	—	—	—	—	—	—	9,689	7,133	28,556
1922	14,652	—	14,652	—	—	—	—	—	—	13,968	9,849	38,469
1923	14,882	1,408 ⁶	16,664	—	—	—	—	—	—	13,677	9,703	40,044
1924	13,037	1,782	16,666	—	—	—	—	—	—	10,306	7,316	32,188
1925	14,200	1,539	15,738	—	—	—	—	—	—	11,068	8,006	34,806
1926	14,933	1,494	16,427	—	—	—	—	—	—	10,252	7,615	34,294
1927	13,721	1,103	14,824	—	—	—	—	—	—	8,168	5,866	28,558
1928	13,052	1,656	14,708	—	—	—	—	—	—	8,185	5,431	28,324
1929	13,558	1,238	14,796	—	—	—	—	—	—	9,071	6,290	30,157
1930	8,760	798	9,558	—	—	—	—	—	—	5,730	4,119	19,430
1931	6,149	763	6,912	—	—	—	—	—	—	4,092	3,051	14,056
1932	4,373	638	5,011	—	—	—	—	—	—	3,604	2,167	10,782
1933	— ¹⁰	— ¹⁰	16,440	—	—	—	—	—	—	6,189	5,919	28,548
1934	—	—	8,433	—	347 ¹¹	2,292 ¹²	1,435 ¹³	1,074 ¹⁴	1,104 ¹⁵	5,615	4,608	24,908 ¹⁶
1935	—	—	8,265	—	3,209	2,521	2,219	1,639	2,205	4,269	3,957	28,284

¹ Boston (main office) opened December 3, 1906.
² Springfield office opened September 4, 1907.
³ Fall River office opened October 1, 1907; discontinued March 31, 1917.
⁴ Worcester office opened September 15, 1913.
⁵ Boston (clerical and technical office) opened January 9, 1922.
⁶ Twelve months for the Boston office, three months for the Springfield office, and two months for the Fall River office.
⁷ Eleven months for the Fall River office (closed during August) and two and one-half months for the Worcester office, opened September 15, 1907.
⁸ Eleven months for the Fall River office (closed during August).
⁹ Thirteen months for all offices except the Fall River office which was open for four months only, having been discontinued March 31, 1917.
¹⁰ Statistics for all divisions of the Boston office merged upon moving to the new Public Works Building.
¹¹ Greenfield office opened October 1, 1934.
¹² Lowell office opened January 2, 1934.
¹³ Lynn office opened March 19, 1934, but statistics merged as of April 1, 1934.
¹⁴ New Bedford office opened April 17, 1934, but statistics merged as of April 1, 1934.
¹⁵ Pittsfield office opened February 19, 1934, but statistics merged as of April 1, 1934.
¹⁶ Three months for the Greenfield office, nine months for the Lynn office, nine months for the New Bedford office, nine months for the Pittsfield office, and twelve months for all other offices.

Table B.—Number of Placements Made by the Division of Public Employment Offices: By Months, 1928 Through 1935

	1928	1929	1930	1931	1932	1933	1934	1935		
All Offices Combined										
January	1,578	2,095	1,511	1,083	679	762	1,568	1,409		
February	1,605	1,620	1,210	978	815	683	1,405	1,002		
March	2,105	2,091	1,580	1,261	895	639	1,540	1,621		
April	2,262	2,671	2,224	1,482	1,019	904	1,821	2,674		
May	2,943	3,237	2,254	1,453	977	1,359	3,954	2,810		
June	2,624	2,969	1,850	1,279	911	1,361	2,133	2,363		
July	2,446	2,780	1,526	1,082	566	765	2,061	2,514		
August	2,586	2,593	1,354	1,032	721	1,002	2,009	2,491		
September	2,947	3,239	1,859	1,303	971	1,296	1,620	2,591		
October	3,279	3,256	1,573	1,232	1,003	1,572	2,401	2,641		
November	2,064	2,031	1,250	888	1,108	2,286	2,291	3,558		
December	1,885	1,575	1,239	982	1,117	15,919	2,105	2,610		
Totals	28,324	30,157	19,430	14,055	10,782	28,548	24,908	28,284		
Boston										
January	849	1,038	773	508	317	388	349	266		
February	813	795	578	453	331	316	398	279		
March	1,145	1,065	788	634	439	258	330	433		
April	1,158	1,247	1,088	700	451	357	902	587		
May	1,544	1,452	1,065	757	429	614	2,743	859		
June	1,336	1,311	893	622	372	533	317	533		
July	1,294	1,381	679	494	219	302	315	593		
August	1,334	1,333	669	531	270	406	407	477		
September	1,497	1,674	1,015	735	522	491	498	668		
October	1,794	1,640	792	614	505	602	841	928		
November	1,010	1,064	594	401	584	1,144	866	1,677		
December	934	796	624	463	572	11,029	467	965		
Totals	14,708	14,796	9,558	6,912	5,011	16,440	8,433	8,265		
Springfield										
January	412	653	398	311	236	207	650	204		
February	502	490	324	303	338	174	451	127		
March	587	611	445	361	306	171	413	197		
April	672	894	684	431	366	313	328	359		
May	842	1,100	738	396	335	422	615	356		
June	698	1,036	586	365	343	497	582	392		
July	687	874	509	305	176	212	512	370		
August	784	723	361	272	253	346	449	574		
September	968	943	544	328	270	490	414	574		
October	876	857	463	383	261	675	522	327		
November	590	490	355	310	352	484	296	380		
December	567	400	346	327	368	2,179	383	409		
Totals	8,185	9,071	5,763	4,092	3,604	6,170	5,615	4,269		
Worcester										
January	317	404	340	264	126	167	511	273		
February	290	335	308	222	146	193	470	181		
March	373	415	347	266	150	210	725	254		
April	432	530	452	351	202	234	407	506		
May	557	685	451	300	213	323	323	518		
June	590	622	371	292	196	331	431	394		
July	465	525	338	283	171	251	223	375		
August	468	537	324	229	198	250	396	217		
September	482	622	300	240	179	315	266	390		
October	609	759	318	235	237	295	264	330		
November	464	477	301	177	172	658	383	324		
December	384	379	269	192	177	2,711	209	195		
Totals	5,431	6,290	4,119	3,051	2,167	5,938	4,608	3,957		
YEAR	1934	1935	1934	1935	1934	1935	1934	1935	1934	1935
MONTH	Greenfield		Lowell		Lynn		New Bedford		Pittsfield	
January	—	106	58	268	—	160	—	80	—	52
February	—	94	86	108	—	116	—	57	—	40
March	—	142	72	213	—	153	—	143	—	86
April	—	262	43	307	72	243	35	160	34	250
May	—	214	82	264	89	273	13	153	89	173
June	—	257	474	233	145	246	37	113	147	195
July	—	418	400	239	228	217	224	99	159	203
August	—	426	191	217	91	174	282	166	193	240
September	—	273	131	118	71	189	46	143	194	236
October	122	260	256	176	164	200	96	206	136	214
November	101	372	188	152	114	170	254	211	89	272
December	124	385	311	226	461	78	87	108	63	244
Totals	347	3,209	2,292	2,521	1,435	2,219	1,074	1,639	1,104	2,205

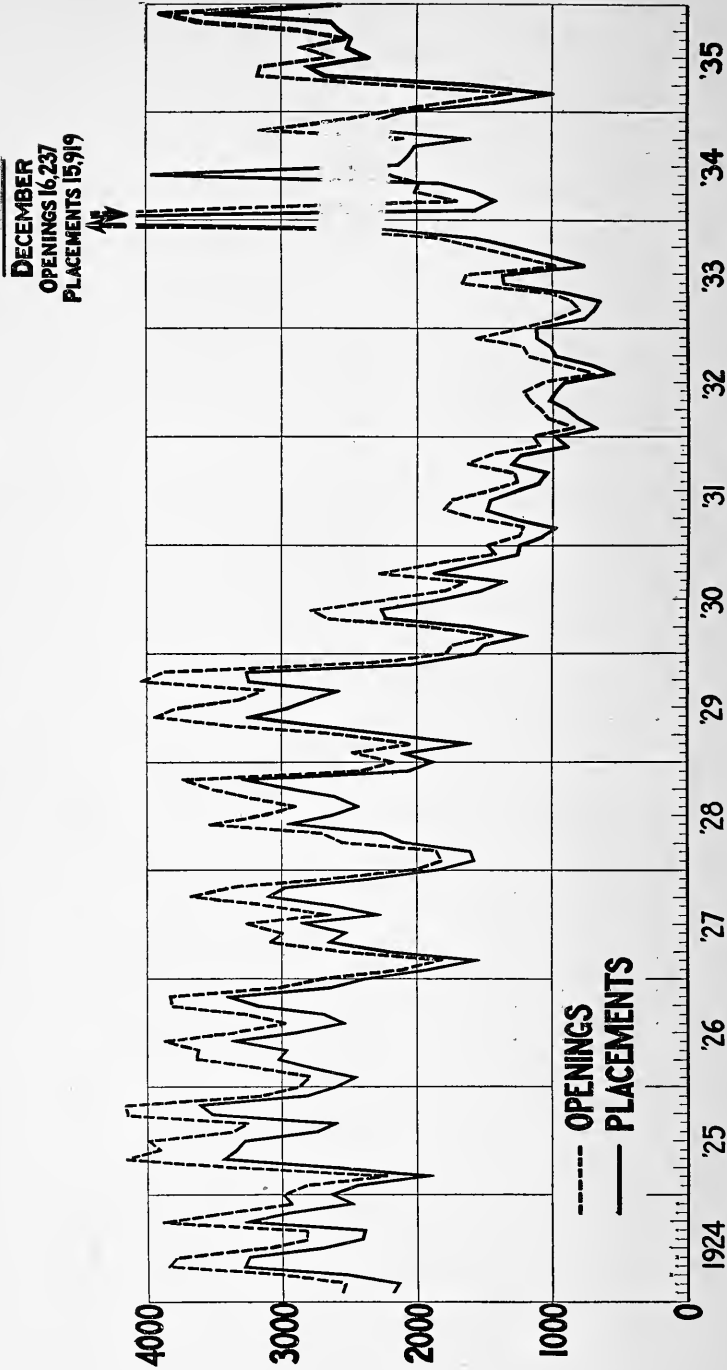
Table C.—Number of Openings and Placements Recorded by the Division of Public Employment Offices: By Months, 1924-1935

MONTH	1924		1925		1926		1927	
	Open-ings	Place-ments	Open-ings	Place-ments	Open-ings	Place-ments	Open-ings	Place-ments
January	2,555	2,178	2,816	2,443	2,787	2,451	2,092	1,914
February	2,538	2,141	2,223	1,898	3,133	2,762	1,813	1,552
March	2,991	2,520	3,157	2,601	3,630	3,020	2,571	2,225
April	3,840	3,281	4,161	3,430	3,605	2,963	3,090	2,646
May	3,768	3,246	3,901	3,335	3,868	3,366	2,993	2,522
June	3,167	2,707	3,995	3,263	3,332	2,901	3,251	2,833
July	2,820	2,409	3,364	2,745	2,972	2,541	2,628	2,299
August	2,808	2,389	3,238	2,590	3,261	2,691	3,094	2,615
September	3,888	3,258	4,144	3,510	3,810	3,175	3,676	3,089
October	3,422	2,941	4,159	3,598	3,823	3,395	3,368	2,974
November	2,925	2,484	3,156	2,809	3,026	2,630	2,613	2,366
December	2,993	2,634	2,879	2,584	2,692	2,399	2,009	1,823
Totals	37,715	32,188	41,193	34,806	39,939	34,294	33,198	28,858

MONTH	1928		1929		1930		1931	
	Open-ings	Place-ments	Open-ings	Place-ments	Open-ings	Place-ments	Open-ings	Place-ments
January	1,809	1,578	2,482	2,095	1,737	1,511	1,245	1,083
February	1,852	1,605	2,052	1,620	1,439	1,210	1,214	978
March	2,554	2,105	2,561	2,091	1,908	1,580	1,574	1,261
April	2,702	2,262	3,404	2,671	2,657	2,224	1,795	1,482
May	3,532	2,943	3,928	3,237	2,787	2,254	1,741	1,453
June	3,106	2,624	3,772	2,969	2,248	1,850	1,495	1,279
July	2,895	2,446	3,315	2,780	1,775	1,526	1,260	1,082
August	3,232	2,586	3,137	2,593	1,627	1,354	1,286	1,032
September	3,536	2,947	4,042	3,239	2,265	1,859	1,625	1,303
October	3,726	3,279	3,871	3,256	1,882	1,573	1,444	1,232
November	2,409	2,064	2,348	2,031	1,425	1,250	1,098	888
December	2,174	1,885	1,783	1,575	1,478	1,239	1,138	982
Totals	33,527	28,324	36,695	30,157	23,228	19,430	16,915	14,055

MONTH	1932		1933		1934		1935	
	Open-ings	Place-ments	Open-ings	Place-ments	Open-ings	Place-ments	Open-ings	Place-ments
January	838	679	981	762	3,683	1,568	1,748	1,409
February	1,040	815	798	683	1,706	1,405	1,325	1,002
March	1,095	895	859	639	2,015	1,540	2,319	1,621
April	1,172	1,019	1,050	904	1,986	1,821	3,185	2,674
May	1,212	977	1,671	1,359	2,224	3,954	3,158	2,810
June	1,065	911	1,632	1,361	2,647	2,133	2,643	2,363
July	692	566	987	765	2,585	2,061	2,848	2,514
August	936	721	1,274	1,002	2,543	2,009	2,534	2,491
September	1,180	971	1,576	1,296	2,101	1,620	2,875	2,591
October	1,210	1,003	1,848	1,572	3,145	2,401	3,594	2,641
November	1,569	1,108	2,753	2,286	2,604	2,291	3,909	3,558
December	1,248	1,117	16,237	15,919	2,240	2,105	2,565	2,610
Totals	13,257	10,782	31,666	28,548	29,479	24,908	32,703	28,284

OPENINGS FOR EMPLOYMENT, AND PLACEMENTS
DIVISION OF PUBLIC EMPLOYMENT OFFICES
1924-1935





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